

Health and Well-Being in a Plastic Polluted Environment:
Exploring the Meanings, Experiences, and Management of
Plastic within the Integral Perspective

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Abstract

Background: Plastic pollution is a central topic for today's environmental crisis as the global production and consumption of plastics keeps impacting our ecosystems services. Norway has the last five years amplified their attention and incentives toward plastic pollution, indicating that plastic pollution influence the Norwegian society's relation to the environment. Yet, little research approach the relation and interaction between plastic pollution and well-being.

Objectives: this study explored how the experiences, meanings and management of plastic pollution impact the health and well-being of young adults in Norway in their everyday lives. To grasp this complex issue, integral theory was adopted to approach the individual experiences and strategies, and how these are perceived to interact with community values and policies.

Methods: This study employed a qualitative phenomenological design to explore the social realities of 10 purposefully sampled interview participants. The data were analysed in both an inductive and deductive approach, as this study also generated data from documentary films.

Findings: The participants shared experiences of their attention toward the impact and personal drivers toward action. What was found was that these were connected to the exposure to harm, and to personal and social achievements. All participants engaged in at least one of the strategies to reduce consumption, sorting at source, beach cleaning, and creating awareness. Information and engagement availability were found to impact these actions and drivers, especially as it was expressed a lack of policy efforts and resources. The participants illuminated an ambivalent interaction to their social relations, found to be both encouraging and pressuring drivers toward change. Media was also found to have the potential to create attention and the feeling of guilt.

Conclusion: This study found that plastic pollution poses complex interactions in the society. Plastic pollution creates interior and exterior drivers that influence human aspirations and needs, simultaneously as the polluted environment produces issues regarding responsibility and human well-being. This calls for a change in attitude toward plastic pollution.

Keywords: Norway, plastic pollution, ecosystem impact, well-being, health, integral theory, young adults, sustainable development, drivers for change

Acronyms and abbreviations

| | |
|---------|--|
| AVO | Audio-visual data as an object of analysis |
| CE | Circular Economy |
| I | Interior Individual (the four quadrants) |
| IT | Exterior Individual (the four quadrants) |
| ITS | Exterior Individual (the four quadrants) |
| MD | Material dimension of well-being |
| NRK | The Norwegian Broadcast Corporation |
| NSD | Norwegian centre for research data |
| SD | Subjective dimension of well-being |
| SDGs | Sustainable Development Goals |
| WE | Interior collective (the four quadrants) |
| WWF | World Wide Fund for Nature |
| 3R rule | Reduce, Reuce, Recycle |

Chapter one

1.1 Introduction

“The problem of plastic pollution is one close to the heart of so many people because it is affecting all of us, every day” (McCallum, 2018, p. 12).

Plastic pollution is a global phenomenon and a central topic for today’s environmental crisis. Since the development epoch from the 1950s and onwards, the consumption of plastic has increased drastically, leaving greater amounts of undegradable plastic pollution behind in our natural surroundings. “Plastic pollution” is here defined by Azoulay et al. (2019, p. 7) as the visual and non-visual plastic in the environment which in turn fragments and contaminates air, water, and soil. Global plastic production annually increased from two million tons in the 1950s to 380 million tons to this day, of which two thirds are released into the environment and in landfills after disposal (Azoulay et al., 2019, p. 5). Mismanaged plastic impacts the ecosystem services we humans are dependent upon by exploiting natural resources and releasing harmful pollutants into our surroundings, directly affecting the marine systems and fishing industries, agriculture and soil, as well as tourism (Williams et al., 2019, p. 6). Plastic pollution is then indirectly challenging human health through inhaling, ingesting, and touching plastic waste, particles and toxins from our natural surroundings (Azoulay et al., 2019, p. 1). Plastic has become an integrated part of our everyday lives, and for us to cope with the posed challenges of plastic pollution, action is required across individual consumption, producer responsibility, and infrastructural improvement (Jia, Evans, & van der Linden, 2019; Prata et al., 2019).

The public and political engagement and demand for sustainable plastic strategies appear to have increased simultaneously with the media representation of the management and challenges posed by plastic pollution. Despite that media constantly problematises this topic, and that most literature in the field study environmental and marine ecosystem challenges, little is known on how this phenomenon challenges human well-being in our everyday lives. The term “well-being” will in this study be defined and framed by what Sarah White (2010, p. 160) conceptualises as the material dimension (MD) of doing well in standards of living and welfare, and the subjective dimension (SD) of feeling good with personal perceptions, relational positions, and levels of satisfaction. This study will shed light on the experiences, meanings, and management of plastic pollution and how this impact human health and well-being.

1.2 Contextualising Norway

Norwegians alone dispose 540 thousand tons of plastic waste annually, an equivalent of 101 kg per person. Only 24 percent of this waste is estimated to be recycled, while the rest ends up incinerated, or in landfills and in the environment (Norwegian Retailers' Environment Fund, 2020). There are no certain numbers on how polluted the Norwegian coast is. However, it is estimated that to what plastic could be identified on Norwegian beaches, 46 percent came from fishing industries while 15 percent came from consumer products. Around five percent could be tracked to the country of origin, whereas 77 percent of this derived directly from Norwegian sources (Norwegian Ministry of Climate and Environment, 2021). The Norwegian media has given much attention to plastic pollution during the last decade. When the Plastic Whale¹ was found in Norway with its abdomen filled with plastic in 2017, it increased public and politician awareness (Kvamme, 2020). Furthermore, plastic pollution has gained attention through the Norwegian Broadcast Corporation (NRK). Their annual broadcast to raise money for a charity, commonly known as the tv-auction, situated the 2020 remedies to the World Wide Fund for Nature (WWF) to combat plastic pollution in Asian countries² (Braaten, Olsen, & Larssen, 2020). A year later, NRK released the documentary mini-series *Plasthavet* (Plastic Ocean) representing what impact ocean and coastal plastic pollution has on the Norwegian environment (Kenneth Bruvik, 2021). In the political sphere, the Norwegian Ministry of Climate and Environment published a report framing the Norwegian plastic strategy 2021, presenting the national incentives toward the plastic pollution challenges: global commitment, circular economy³ (CE), plastic product frameworks, utilization of resources from the waste, management of plastic in specific sectors, reduce micro-plastic and acute pollution, assist with remedies for clean-ups, and to increase knowledge (The Norwegian Departments, 2021).

In relation to the increased awareness and measures allocated to plastic pollution in Norway, it appears to be a shift of focus towards sustainable and responsible incentives. Moreover, it seems like plastic pollution influences the Norwegian society's relation to its environmental surroundings. However, it is not evident how this influence occurs. The thesis will approach this relation by looking into how Norwegians are affected by plastic pollution in their everyday lives, and how this impact their material and subjective well-being.

¹A Whale in Sotra outside of Bergen in 2017 was found with its abdomen filled with 1,5 tons of plastic waste. It was put down because of sickness, and the phenomenon created global and national awareness (Kvamme, 2020).

²In the oceans and rivers of Thailand, Vietnam, Philippines, and Indonesia (Braaten et al., 2020).

³A stronger framework for plastic products to "stand the test of circularity", implying that plastics should have an eco-design that is possible to be repaired, reused and recycled (The Norwegian Departments, 2021, p. 25).

1.3 Significance of the study

Plastic pollution poses a threat to the current and future generations as unsustainable behaviour challenge our environments and the fulfilment of the Sustainable Development Goals (SDGs). Plastic pollution impacts global food security (SDG2), water availability (SDG6), sustainable and safe communities (SDG11), sustainable consumption and production (SDG12), climate action and impact (SDG13), conservation of life below water (SDG14), and protection of life on land (SDG15)⁴ (United Nations, n.d.). Despite that most production is centralised in developed countries, plastic pollution is particularly challenging for developing countries⁵. To increase the knowledge on how plastic pollution creates awareness about sustainability in the society, it may conceivably create incentives to change this unsustainability in the future.

Within the health promotion field, the relation between health and well-being (SDG3) and the environment has a growing relevance (Nunes, Lee, & O'Riordan, 2016, p. 2). The Rotorua Statement (Tu'itahi et al., 2019, p. 100) calls for action to address the human and environmental well-being because of the increasing impact, and to the extent that the ecosystem cannot sustain itself. Incentives toward sustainable plastic behaviour are mainly approached through efforts and resources in individual behaviour as well as community and governance institutions. However, the development of incentives in individual motivation and cultural influence is also needed for the environment to remain sustainable. The Ottawa Charter (World Health Organization, 1986) states that “*health promotion is the process of enabling people to increase control over, and to improve, their health*”. This study seeks to extend the knowledge about well-being in relation to plastic pollution, and how this relation interacts with individual and cultural drivers that promote health. This may enable behavioural change and highlight the need for plastic pollution to be recognized as a greater human health challenge than it is today.

1.4 Outline thesis structure

The thesis consists of six chapters. Chapter one starts introducing the context and significance of the study. Chapter two present the theoretical framework, literature review, and objectives guiding this thesis. Chapter three illustrates the methodology and assumptions leading the choices of design. Chapter four presents the findings from the interviews and the audio-visual analysis. Chapter five exhibit the discussion and the study limitations, and finally, chapter six encounter the conclusion and recommendations of the study.

⁴This thesis highlights the SDGs that is found most impacted in relation to the objectives and findings, even though plastic pollution has been connected to influence more than half of the SDGs (Williams, 2019, p. 32).

⁵I am aware that “developed and developing” is a simplification of terms as many countries is seen as being in-between these categories. However, I chose these terms because they were used in many of the cited articles.

Chapter two

2.1 Theoretical framework

The theoretical framework guides this thesis by using the theory as an analytical tool to shed light on the different aspects of plastic pollution. Thereby, the four quadrants (figure 1) will firstly guide the literature review and the objectives in this chapter, and later on, be visible throughout the findings and discussion chapters.

2.1.1 Integral theory

Ken Wilber (2005, p. 5) describes Integral theory as an integral operation system that allows programs to interact and move through multiple domains, and then enabling cross-disciplinary concepts and knowledge. Likewise, Tamilea Lundy (2010, p. 46) points out that the model addresses the whole complexity of human experience, not leaving out any situation or event. The theory operates with essential development systems called states, levels, lines, types and quadrants (Wilber, 2005, p. 3). However, I will only use the four quadrants (figure 1). Moving horizontally, the upper left quadrant represent the interior individual of experiences and well-being, while the upper right quadrant looks on the exterior individual behaviours and health. The lower left quadrant approach interior collective values and relations, and the lower right quadrant represents the exterior collective with natural and human made systems. Vertically, the left quadrants shed light on interior aspects which can only be experienced subjectively, while the right quadrants approach objective aspects in our surroundings exterior to ourselves. The theory artificially separates the quadrants for analysing all aspects of a phenomenon, but in reality, all quadrants influence with each other and are interconnected.

Barrett Brown (2005, p. 9) notes that Integral Sustainable Development acknowledges both transformation and translation: the first encourages people to shift value systems to sustainability, and the latter works with already existing value systems. For projects to become sustainable, they are needed to touch upon all four quadrants by “pushing” the interior drivers while simultaneously applying exterior “pressure”. In other words, it needs to touch upon the exterior and objective conditions while also approaching the interior and subjective aspects (Wilber, 2005, pp. 35-36). Agenda 21 from the Earth summit in 1992 started an international Integral approach for merging both exterior and interior value systems (Brown, 2005, p. 44). Today, we have the 2030 Agenda for Sustainable Development approaching multiple domains that are highly interlinked in 17 goals and 169 targets. This agenda offer indivisible initiatives across environmental, economic and social domains (Nunes et al., 2016, pp. 1-2).

Figure 1: An illustration of the four quadrants (Lundy, 2010, p. 47).

| | |
|---|---|
| Interior Individual (I) thoughts, feelings, perceptions, values, beliefs, motivations, commitments, well-being | Exterior Individual (IT) material body, physical health, activities, behaviours, techniques, tools, material resources |
| Interior Collective (WE) shared; attitudes, values, beliefs, worldviews, norms, ethics, relationships, cultural background | Exterior Collective (ITS) natural environment, human systems, community institutions, governance processes |

2.1.2 Integral plastic pollution

Integral theory enables this study to explore and analyse plastic pollution through four perspectives, and how these interact with each other. The interior individual quadrant (I) will address how the study participants feel about and are influenced by the challenges posed by plastic, which will shine light on their motivations toward behaviour and action. The exterior individual quadrant (IT) will investigate the participants' behaviour towards the challenges, by means of consumer choices and activities contributing to more environmental-friendly habits. Moreover, the interior collective quadrant (WE) will approach how the community is perceived to meet the plastic pollution challenges or aspire to act, as this influences individual meanings and behaviour. The exterior collective quadrant (ITS) will focus on environmental quality and existing political and economic systems used to cope with the challenges, as perceived by the participants. Hence, all quadrants influence and interact with each other; the quadrants construct and recreate the meanings of the phenomenon, and together they influence each other by individuals experiencing, behaving, and adapting to the challenges posed by plastic pollution. With this theoretical framework, the thesis will not only be able to address different perspectives of plastic pollution, but also to probe the interconnection between these aspects as plastic pollution touch upon all parts of our society and affects our everyday lives.

2.2 Literature review

The literature review comprises 41 articles mainly collected from recent peer reviewed publications. The main databases used were the University of Bergen library database Oria and Google Scholar, as these sources had the most relevant literature. During the review, most of the searches included the terms “plastic pollution”, “marine waste”, “well-being” and “mental health”. I also included words like “experiences”, “culture”, “management”, “action” and “policies”. Truncation and the mixing of search terms was also used. The outline of this section follows the four quadrants presented above, vertically from the individual to the collective.

2.2.1 Environmental attention and experience

Plastic pollution has the last decade been considered a global threat which derives special environmental attention (Soares, Miguel, Venâncio, Lopes & Oliveria, 2021). The World Happiness Report (Helliwell, Layard, Sachs & De Neve, 2020) illustrate how environmental quality influences well-being by looking at emotional changes based on our surroundings, yet, plastic pollution is not recognized. Environmental attention is gained by the evidence of harm, as shown by the increased global influence attained from the anti-microbead activism in 2012 and the plastic whale in 2017 (Dauvergne, 2018-a; Soares et al., 2021). Studies show that by experiencing the impact of plastic pollution, it produces negative perceptions and a stronger will to reduce plastic usage (Turner, 2021; Van Rensburg, S'phumelele, & Dube, 2020). Some studies focus on how plastic pollution is experienced as a distant challenge for consumers in developed countries. Barnes (2019) highlights plastic pollution as a “transferred burden” to developing countries, and that plastic is perceived as an “out of sight out of mind” in developed countries. Moreover, some studies found a plastic appreciation among individuals despite the awareness of harm, and that this perception is created by low impact of personal harm in both exterior and interior situational factors (Heidbreder, Bablok, Drews & Menzel, 2019; Kedzierski, Frière, Le Maguer & Bruzard, 2020). Another study found a decline in adolescents environmental concerns in the millennium shift, that was grounded in the reduced belief of personal responsibility and resource scarcity (Wray-Lake, Flanagan, & Osgood, 2010).

2.2.2 Individual management and knowledge

A small body of literature approaches individual strategies and action toward plastic pollution. McCallum (2018) wrote about individual steps for reducing plastic. One study faced consumers with alternatives to reduce plastic, and found that they preferred reusable cutlery, stirrers, bottles, detergents, and plastic free cotton-buds (Marazzi, Loisele, Anderson, Rocliffe & Winton, 2020). According to a study, the use of environmental-friendly products is driven by “green trust”, being the product value and the perceived harm (Pahlevi & Suhartanto, 2020). However, there is a lack of supply and demand for these products because of insufficient price, traceability and recyclability (Milios et al., 2018). Several studies highlight that knowledge contribute to positive plastic behaviour. Informed individuals usually have positive attitudes towards recycling habits and action (Afroz et al., 2017; Soares et al., 2021; Situmorang, Liang, & Chang, 2020; Chow, So, Cheung & Yeung, 2017; Khan, Saengor, Alganad, Chongcharoen & Farrukh, 2020; Sheavly & Register, 2007). However, another study found an inevitable consumption of plastics despite the awareness of the impact (Permana, Rizal, & Hasan, 2020).

2.2.3 Socio-cultural influence and younger generations

Some studies highlight the cultural influence of environmental-friendly action and behaviour, but there is little focus toward plastic pollution. Ethics derive special attention when making consumer decisions, and according to a study, consumers share their ethical perceptions and behaviours in group identifications (Papaoikonomou, Cascon-Pereira, & Ryan, 2016). Studies show that plastic behaviour is influenced by socio-cultural pressure that encourages individual incentives, environmental attention, and perceived consequences (Khan, Ahmed & Najmi, 2019; Khan, Ahmen, Najim & Younus, 2019; Viscusi, Huber, & Bell, 2011; Mintz, Hehn, Park & Kurman, 2019). Social norms are thus not only a predictor for reduced consumption, but also for future change (Borg, Curtis & Lindsay, 2020). Moreover, it is commonly illustrated in the literature that youth environmental activism is more progressive than the rest of the society (Lorenzini, Monsch, & Rosset, 2021, p. 3). A study found that young people identified collective activism as generators for hope and the feeling of a shared burden (Nairn, 2019). Young people are influenced by collective action and by perceiving close relations and role models engage (Arnold, Cohen, & Warner, 2009; Wallis & Loy, 2021, Sabherwal et al., 2021).

2.2.4 Infrastructural systems and policies

Some studies approach the systemic structures related to plastic pollution. One study illustrate recycling, depositing in landfills, incineration, microbial degradation, and conversion to be the main management strategies in society (Ilyas et al., 2018). In the European Union (EU), the preferred strategies are energy recovery and recycling, while the least preferred is depositing in landfills (Baran, 2020; Lazarevic, Aoustin, Bucklet & Brandt, 2010). Moreover, one study points out that commercial fishing in Norway uses the strategies of recycling, landfills, and incineration (Deshpande, Skaar, Brattebø & Fet, 2020). Plastic policies are emerging in the field, and an increasing plastic politization give attention to CE and global plastic conventions (Nielsen, Hasselbalck, Holmberg & Tribble, 2020; Shin, Um, Kim, Cho & Jeon, 2020). Dijkstra, Beukering and Brouwer (2020) reports that business models of sustainable plastic management, with CE in a quarter of all cases, mainly address the strategies of recycling, creating waste value, and bioplastics. Despite the global concern, no international agreement focusing primarily on combating plastic pollution exists (Carlini & Kleine, 2018). However, Da Costa, Mouneyrac, Costa, Duarte and Rocha-Santos (2020) found that national regulations usually address one or more of these four areas: the prevention through the “3R rule” of reuse, reduce and recycle, the removal by clean-ups and monitoring, the mitigation on waste disposal, and the educational focus on awareness and incentives.

2.2.5 The research gap

The reviewed literature on plastic pollution, including the media picture, predominantly centralises on the environmental impact, with a special focus on the marine ecosystems. Most of the literature appear to largely have a “negative” sight on the challenges, and therefore, I will contribute with a more “positive” perception on what drives people to do and be more sustainable. Furthermore, I found little research concerning well-being, suggesting that this thesis will dive into the individual experiences and meanings of plastic pollution and how this relates to health and well-being. This will be done by approaching the interior and exterior drivers for social change. Simultaneously, the reviewed literature suggests that the main approach toward the posed challenges is through the transformation of exterior quadrants, while Integral theory accounts for both translation and transformation in all quadrants. This focus of attention, together with giving a more holistic and integral viewpoint, will lead this study to contextualise a health promotion related aspect regarding plastic pollution. I did not find many relevant studies conducted in Norway except the literature about the fishing industry, nor studies about young adults except the literature on environmental youth activism. The study location was chosen to be in Norway, and the participants of the study were to be young adults to represent the youths’ experiences and activism toward plastic pollution. Lastly, I will contribute with an emerging data collection method. As none of the studies I found mention documentaries as a potential source of influence, audio-visual analysis will try to “mimic” prolonged engagement, as well as contextualise the plastic pollution incentives in Norway.

2.3 Research objectives

According to the presented sections above, there is a need to approach the interaction between plastic pollution and well-being. Moreover, little is known about the relation between plastic pollution and youth activism in Norway. Hence, the central research objective of this thesis is;

- to explore how the experiences, meanings and management of plastic pollution impact the health and well-being of young adults in Norway in their everyday lives.

To then grasp the complexity of plastic pollution, and how all parts of society is perceived to interact with this phenomenon, the research sub-objectives are guided by the four quadrants:

- What are the experiences and meanings of plastic pollution among young adults?
- What strategies and actions related to plastic pollution do young adults engage in?
- How do cultural norms and values interact with these experiences and actions?
- How do policies and systemic structures interact with these experiences and actions?

Chapter three

3.1 Methodology

This chapter will present and explain the chosen methodology and research approach for this study. I will first introduce the research design and philosophical assumptions (3.2), as this is the ground base for the following sections: study location and participant recruitment (3.3), data collection methods (3.4), data management and analysis (3.5), trustworthiness of the data (3.6), researcher reflexivity (3.7), and lastly research ethics (3.8). Overall, this chapter will rationalise my choices of research design in accordance with my research objectives.

3.2 Research approach and design

Since the purpose of this research is to explore young adults' conceptualisations of plastic pollution within the integral perspective, I found it important to capture their experiences and action, while simultaneously approaching their interaction with the community they are part of. I then found a qualitative phenomenological study to be appropriate for this thesis. A qualitative study aims to explore the personal and social meanings, experiences, and practices of a phenomenon (Skovdal & Cornish, 2015, p. 4). This provides insight to better understand the social interpretations of plastic pollution as well as how plastic pollution is experienced within multiple realities. As a phenomenological study seeks to explore the lived experiences of individuals to grasp the "essence" of a phenomenon (Creswell & Poth, 2018, p. 67), the study explored a group of individuals who has experienced plastic pollution in their everyday lives, for the development of a view on how they attach meaning and attention to this phenomenon.

A researcher must interpret and reflect upon the ontological and epistemological positions which guide the assumptions of reality and produce knowledge. My philosophical position is Interpretive Constructivist in the manner that people construct their realities through what they interpret and experience in the social world. With the assumption that people subjectively create and interpret their everyday lives, they also experience reality differently (Neuman, 2011, pp. 102-103). The knowledge production is then also constructed and not neutral. The Interpretive phenomenological approach further involves a double hermeneutics, implying that it approaches both the participants' sense of lived experiences and the researcher's attempt to understand how the participants make sense of their social world (Creswell & Poth, 2018, p. 82). This research approach then apprehend the individual conceptualisations of plastic pollution which in turn depend upon on interactions with specific events and people, and the common sense of reality (Neuman, 2011, p. 106).

3.3 Study location and Participant recruitment

I found little published research conducted on plastic pollution in Norway, even though Norway's engagement has increased simultaneously with the amounts of plastic pollution along the coast during the last decade. As I already had experienced plastic pollution in Norway, had a social network of potential participants, and the opportunity to travel between regions, it was both feasible and convenient to have the study location in Norway. Moreover, the audio-visual materials in this study (section 3.4) represent Norway's approach toward plastic pollution.

To represent both the life experiences of study and work as well as the awareness and action among the youth, the participants selected were young adults in Norway ranging from 24 to 28 years of age. I recruited two groups with five participants in each, following the inclusion criteria of: (1) participants with background in or active engagement in plastic pollution solutions, management, and environmental-friendly behaviour, or (2) participants passively aware of the engagement in plastic pollution solutions, management, and environmental-friendly behaviour. The participants were recruited through purposive sampling in the manner of recruiting extreme and deviant cases to represent a range of experiences, as engaged versus passively aware shed light to the experiences on two different sides of a scale (Skovdal & Cornish, 2015, p. 41). This enabled the possibility to get a broader insight and to recruit from various locations, backgrounds, and gender, as plastic pollution impact people's lives differently. To know where to categorise the sampled participants (table 1), I reflected upon their background activities and knowledge towards plastic pollution, as well as how they perceived their own engagement rate to be.

Table 1: Participants in the study.

| | Participants | Age/sex | Location |
|------------------|-----------------------------|---------|--------------|
| Actively engaged | Beach cleaner Dory | 24, F | Bergen |
| | Beach cleaner Nemo | 28, M | Bergen |
| | Communication consultant | 28, M | Bergen |
| | Social geography student | 25, F | Oslo |
| | Landscape architect student | 27, F | Oslo |
| Passively aware | Psychology student | 25, F | Tromsø |
| | Engineer student | 25, F | Kristiansand |
| | Formwork carpenter | 26, M | Kristiansand |
| | Nurse | 25, F | Bergen |
| | Fisherman | 25, M | Kristiansand |

3.4 Methods of data collection

Methods in a phenomenological interpretivist study aim for a deep understanding of individual experiences by conducting interviews, observation, and documents (Creswell & Poth, 2018, p. 76-77; Neuman, 2011, p. 101). The data collection accommodates two steps; in-depth interviews with the participants and audio-visual analysis inspired by observing documentaries.

Interviews, as the first source of data, attempt to explore the world and to understand the studied phenomenon from individual viewpoints, experiences and norms (Skovdal & Cornish, 2015, p. 56). I conducted ten in-depth interviews. This enabled me to study the “what and how” of plastic pollution through predetermined categories from an interview guide, while simultaneously exploring emerging themes from individual viewpoints. The interview guide (Appendix D) was framed by the four quadrants. The collection period lasted approximately one month from the first to the last conducted interview, and the time spent in each interview varied from 20 - 60 minutes depending on the participants’ engagement. The interviews were conducted in private settings, while two were digital because of the location during the data collection. I took the role of leading the interview to touch upon all the quadrants, while also giving the participants space to talk about related themes that interested them. The interviews were held in Norwegian to avoid possible language barriers during the data collection.

The second source of data is documentary films, which will be referred to as “audio-visuals”. Audio-visuals are a way to understand meanings by observing “pieces of objectified reality”, and allows for approaching re-constructed realities and crystallised pieces of meanings (Figueroa, 2008, p. 4). The main purpose of this data source was to approach how audio-visuals are constructing meaning, how these materials affect individual experiences of plastic pollution, and how they are offering the contribution of knowledge and awareness. Audio-visual data as an object of analysis (AVO) inspired this method of observing impressionistic and implicitly expressed information (appendix C) in two Norwegian audio-visuals:

- Et hav av muligheter – “Ocean of Opportunities” (NRK, 2020). The Tv-auction 2020 focusing on the combat and aid toward ocean plastic pollution, with WWF as main actor for making management in four Asian countries. This material was chosen to get an understanding of the Norwegian efforts toward plastic pollution. Playing time 3h 20m.
- Plasthavet – “Plastic Ocean” (Kenneth Bruvik, 2021). A documentary mini-series focusing on how plastic pollution impact the ecosystems. Episode three “consequences” was chosen for its identified focus on environmental and health related impacts of plastic pollution in the ocean, and are perceived to create knowledge and consciousness about the challenges related to environmental and human health. Playing time 42m.

3.5 Data management and analysis

Qualitative analysis draws on deductive approaches that enable to guide the data according to a predefined framework to focus on specific answers, and inductive approaches in the manner of taking an explanatory perspective and consider all impressions (Skovdal & Cornish, 2015, p. 48). This study's analysis is both inductive and deductive. Data from both the interviews and audio-visuals were transcribed manually and analysed in Norwegian to not lose any important meaning or context. After all themes and topics had been identified, I chose the citations that represented the participants' "common" expressions and translated them. This implies that the citations were not translated to English before all data had been analysed and put into themes. All the data matched the global themes based on the four quadrants (table 2 and 3).

I used inductive thematic network analysis in accordance with Attride-Stirling (2001, p, 391) for the interview data. The analysis steps included: (1) devising a coding framework and dissecting the text into coding segments (2) identifying themes in coded segments and refining themes (3) developing networks by arranging codes into basic, organising, and global themes (4) describing and exploring developed thematic network (5) summarising the characteristics of the thematic network and (6) interpreting patterns in accordance with thesis objectives. For managing my collected data, I used the NVivo 12 software to code and organise, and it equipped me with a structural approach for analysing the data and keeping quotations in categories to recollect them at a later point. Approximately 100 codes emerged during the analysis, which in turn offered me 28 basic themes in relation to 10 organising themes (table 2).

The audio-visuals were analysed by the deductive AVO approach for not breaking the contextual structure before any deep interpretation is achieved (Figueroa, 2008). Hence, the approach moved from broader themes to smaller topics: (1) exploring global themes of what is presented and not presented and how these impressions are achieved (2) inspecting and formulating smaller topics in relation to generative questions and analysing possible empirical examples (3) comparing, refining, confirming, and rejecting hypotheses grounded in observation. I started the analysis with observing the materials a couple of times and making notes about what was going on in relation to my research questions. In addition, I noted implications not explicitly expressed but perceived implicit as I tried to uncover how the materials transmitted information to me as a viewer. In the next step I moved from the more abstract concepts highlighted in the materials, and over to more concrete and implicit topics of the materials related to my own reflections of what was presented. The Audio-visuals bestow with 5 impressionistic themes, generating 7 implicit themes and 16 emerging topics (table 3).

Table 2: Basic, organising and global themes from the Interviews.

| Basic themes | Organising themes | Global themes |
|---|-----------------------------------|--------------------------------|
| Overwhelmed by the amounts Not so affected or noticeable | Emotional reactions | Interior Individual (I) |
| Consumer responsibility Producer and corporate responsibility Responsibility as transferred | Perceived responsibility | |
| Environment as prerequisite Contribute to social change | Motivation toward action | |
| Reduce personal consumption Sorting at source and beach cleaning Raise awareness amongst others Not very engaged or active | Individual action | Exterior Individual (IT) |
| Plastic entering our bodies Heavy metals in plastic Same living quality either way | Physical reactions | |
| Shaped while growing up Affected by social relations Generational influence | Relations around us | Interior Collective (WE) |
| Information through social media Representations in Audio-visuals Narratives told in media | Media attention | |
| Distinct impact among countries Marine life and animals most affected | Environmental impact | Exterior Collective (ITS) |
| Uncertain on how it is handled Incinerated or recycled Handled differently among countries | Waste management | |
| Guidelines and information Engagement availability Alternatives to plastic products | Unavailable resources and efforts | |

Table 3: From abstract to concrete topics in the Audio-visuals.

| Impressions | Implicit expressions | Emerging topics | Quadrants |
|---|---------------------------------|---|-----------|
| Illustrations of ocean life vs. plastic pollution | Represented values and emotions | Shock-value Responsibility Ocean relations Knowledge contribution Attitudes and beliefs | WE |
| Cleaning plastic | Impact of plastic | Ecosystem impact | ITS |
| | Motivations for cleaning | Contribution Well-being | I |
| | Individual action | Beach cleaning Auction related behaviour | IT |
| Plastic toxins | Health impacts | Hormonal systems | IT |
| Norway: waste management | Management today | Laws and frameworks Reuse and recycle | ITS |
| Asia: waste management | Pollution differences | Geographical region Resources and efforts Auction contribution | ITS |

3.6 Trustworthiness

For qualitative research to be of good quality, instruments are used in relation to the participants and researcher position. Interpretive constructivist studies should meet four criteria: credibility, transferability, dependability, and confirmability (Creswell & Miller, 2000, pp. 125, 126).

Credibility is the extent to which the findings are believable and true to others. To ensure this, I employed triangulation to rely on multiple forms of evidence (Yilmaz, 2013, p. 320; Creswell & Miller 2000, p. 127). I explored individual realities by interviewing participants, and expressions which are not present in everyday life in the audio-visuals (Figueroa, 2008, p. 4). This triangulation granted both a direct and indirect approach to plastic pollution. While my research did not use constructivist prolonged engagement in the field (Creswell & Miller, 2000, p. 127), the observation of audio-visuals was used to try and “mimic” this engagement process.

Transferability, by which the findings can be transferred and applied in different settings, were met by using thick descriptions. This provided accurate illustrations of the presented social world, making it easier to familiarise with and compare it to similar settings (Creswell & Miller, 2000, p. 129; Yilmaz, 2013, p. 320-321). Constructivist thick descriptions attaches meaning to the findings by richly illustrating the study context, for the readers to understand what and how the phenomenon occurred. Moreover, I used member checking to confirm the interpreted data (Creswell & Miller, 2000, p. 127), by asking the participants about their attached meanings to not misinterpret the context of the collected and transcribed data.

Dependability is met by justifying that the findings derive from the context they generated from (Yilmaz, 2013, p. 320). I approached the audit trail by providing clear documentation of all activities during the study (Creswell & Miller, 2000, p. 128). The study is guided by integral theory, and by utilising an interview/observation guide, the data collection and analysis was planned and categorised. The interviews were recorded to make sure all data was captured. The tables/figures and appendices illustrate the processes. Finally, I analyse the data until no new themes emerged by moving back and forth from raw and analysed data.

Confirmability implies that the findings are grounded in data analysis and not based on the researcher bias (Yilmaz, 2013, p. 320). I triangulated the data through purposive sampling and different collection methods to diminish the hermeneutics interaction. One procedure was to “bracket” my own experiences to enable a fresh picture on plastic pollution (Creswell & Poth, 2018, p. 78; Creswell & Miller, 2000, p. 127). This allows the reader to understand my position and disclose personal factors that can determine the research process and outcomes. I also used peer debriefing by having my supervisor and other associates review the study to see if it resonated with the collected data rather than my own experiences (Yilmaz, 2013, p. 321).

3.7 Researcher reflexivity

As researchers inevitably are influencing the data, it makes me as a researcher a key instrument for generating evidence (Skovdal & Cornish, 2015, p. 8; Yilmaz, 2013, p. 317). The double hermeneutics occurring through both the participants' lived experiences, and my interpretations of the participants and audio-visual representations of realities, makes this study dependent on the interaction between researcher and data collection. All the participants had the background knowledge of me being a beach cleaner last autumn, simultaneously as they knew I was engaged in the plastic pollution problematisation. My assumption is that this knowledge may have affected the data, and that the participants may have changed their conceptualisations for this matter. Moreover, the choice of age sampling was to meet the lived experiences and youth activism, while simultaneously trying to create a middle ground for the participants and me as a researcher to not feel uncomfortable with the age differences. Overall, I did not have the possibility to bracket the assumptions from the interviews.

3.8 Ethical considerations

Shaw and Holland (2017, p. 2-3) highlight some principles for the research to be ethical; trustworthiness (section 3.6), informing participants, confidentiality, voluntary participation, to avoid harm, and research independence. As the study site was Norway where the challenges are more of a distant experience, it is not of a particular sensitivity. However, the ethics were considered since interviews were conducted. This study was applied for ethical clearance to the Norwegian Centre for Research Data (NSD) and was granted ethical clearance (appendix F).

Firstly, the participants were given a written document (appendix A) before the interviews with information about the use and purpose of the study. This was for them to fully understand the study context and their involvement in the study. Each participant confirmed with a written consent to participate, as well as giving me the permission to record during the interviews. To ensure confidentiality and anonymity, I gave all participants pseudonym names. Moreover, I originally applied for the UiB SAFE system for storing the collected data. However, this storage expired when not being used in the beginning, and I did not get access to it when it was needed on a later point. The collected data was then stored on a password protected computer and deleted after the transcribing and analysis. Further on, the consent form explicitly stated that the participation was voluntary and free from coercion, and that the participants could withdraw whenever in the process if they desired. Lastly, harm was avoided in all instances by conducting the interviews in private and safe settings, and the research was independent and had no conflicts of interests.

Chapter four

4.1 Findings

This chapter will present the findings from both the interviews and the audio-visual materials. The presentation will move through the four quadrants of integral theory as these turned out to be the global themes: Interior Individual (4.1.1), Exterior Individual (4.1.2), Interior Collective (4.1.3) and Exterior Collective (4.1.4). The findings from the interviews will in each section be presented first, followed by the observatory and contextual support from the audio-visuals.

4.2 Interior Individual

This section encounters the interior life of the participants and the audio-visual representations of experiences and meanings towards the phenomenon. The organising themes illuminated in this section, is the participants' represented emotional reaction, their perceptions of responsibilities, and their interior motivations toward action.

Interview findings

One of the first occurring themes was how the participants, in various ways, had emotional reactions towards both plastic products and plastic pollution. Over half of them pointed out that they feel overwhelmed by the plastic amounts surrounding them in everyday life, as illustrated by both the formwork carpenter and the engineer student:

“I feel harmed, and it is hideous. But that is how I react when I am out in the boat and see that people have not cleaned up after themselves. It is horrible”.

“I did not think that plastic was used for so insanely many different things. I’ve only thought about it as packaging, but it is in everything. It is shocking.”.

In contrast, a minority of the participants addressed that they do not notice or are not so affected by plastic pollution. However, the participants expressing this also stated that they were aware of the future and their own living habits, as illustrated by the nurse:

“On a personal level I do not feel very affected the way I live now, which in turn is a bit unfair, but I try to be conscious about how I live. I do not feel that the most negative consequences affect me yet”.

This theme was expressed by several of the participants, independent from their background or engagement rate. Evidently, the participants experience plastic pollution through either directly perceiving it or thinking about it, and this experience is creating emotional reactions.

Another theme was how the participants perceived responsibility in relation to plastic pollution, which came to light on three different topic levels; consumer responsibility in the collective system, producer and corporate responsibility, and responsibility as transferred. Most of the participants reflected upon their individual responsibility as being part of the consumer society. This expression was split on individuals having and not having responsibility, as illustrated by the communication consultant and the social geography student:

“I, as an individual have it, and I think that everyone else also should have it, both as an individual and as a collective society. Everyone has a responsibility for their own consumption and there are always some measures an individual can do to improve”.

“Yes and no [...] I try to take my responsibility, but we do not really have responsibility on an individual level. Bigger things need to happen for something to actually change”.

Half of the participants had an opinion on the producer and corporate responsibility. The reasons expressed for this delegation was that bigger corporations have greater impact for change compared to the consumer behaviour. This is stated by the landscape architect student:

“You get a little disappointed when bigger corporations do not do anything, which may have greater impact than what you feel as an individual”.

This topic also included the marine industries as being the worst polluters, as most of the participants resentfully called out this industry. However, some participants also talked about the fisheries being negatively presented. The fisherman summarises these statements:

“You see that it moves to land, and much of it comes from us fishers. You can easily spot it, and that is thought-provoking. I want to say that media may have negatively presented⁶ us a little even though I have seen a positive development in the industry”.

Some of the participants reflected that responsibility is being transferred, both through their personal perception of waste management, and how they feel that others are perceiving it:

“When you talk to Norwegians about plastic pollution everyone agrees that plastic is bad, but they rather refer to the rivers in Asia. And then I feel that it is easy to blame others for doing worse, but it does not help what we do to the nature in Norway. We should start fixing the problem here” (Beach cleaner Nemo).

This theme was broad and comprised different reflections since all participants had opinions to express about it. As the participants illustrate, it is difficult to place the responsibility when plastic pollution encounters many parts of our society. Furthermore, this theme also illustrates a common problem statement; where to position the responsibility of plastic pollution.

⁶ Translated from the Norwegian word “uglesett”.

The last occurring theme in this section was the participants' motivations toward action. As plastic pollution firstly is an environmental challenge, I asked about their relation to nature. All participants felt “conscious towards” or had a “positive relation” to the environment. Moreover, half of the participants noted that the environment is a necessity for how we live:

“My view is that the climate and environment around us and in the bigger picture, is the reason we humans can survive and produce the things we do. And therefore, in my worldview, the environment should be a prerequisite” (Beach cleaner Nemo).

Over of half the participants expressed that their motivation for action were the contribution to positive change, or to change the society's relation to plastic for creating the needed change:

“It is the feeling of contribution and wanting to create a positive change. In a way we have consumer power, and if you show what interests you, it can create a social change. I want to be part of showing that this is needed” (social geography student).

This theme illustrated how the participants position themselves in relation to the environment, which then creates motivations for their engagement. Around half of the participants reflected upon their underlying motivations, with a bigger representation from the engaged sample group.

Audio-visual findings

For this global theme, both the audio-visuals represented motivations for cleaning plastic. As stated in *Plastic Ocean*, beach cleaning is about contribution and the feeling of well-being:

“I love being part of the solution, even though I also am part of the problem, like we are all part of the problem [...] It is amazing [cleaning plastic], it is like we have done something good with our day. [people] do not see doing this as selfcare, but I think it is actually super good for how you feel” (Beach cleaner Juliette Rouessé, 36:00).

This is also represented in *Ocean of Opportunities*, as illustrated by Simen Knutsen⁷:

“There was no one here cleaning, nobody from the public, or from the municipalities, or waste companies [...] and it is kind of nice to have a thing as going out cleaning plastic because it is tangible, anyone can do it [...]. And nobody can tell you that it is wrong. You contribute to a cleaner beach (01:47:15).

This theme illustrated a connection with the participants' motivations toward action, as the individual motivations are to contribute to change and a cleaner environment. This theme also express thoughts about responsibility; however, the audio-visual representations of emotions and responsibility will be elaborated on in the Interior Individual section (4.1.3).

⁷ Background in Nordic Ocean Watch, picking plastic and surfing in Hoddevik (Stad municipality) since 2013.

4.3 Exterior Individual

This section encounters the Exterior Individual and how individuals physically behave towards the phenomenon in their everyday lives. This includes two organising themes; individual action towards plastic pollution and physical problems related to how our bodies may be impacted.

Interview findings

The broadest theme in this section was individual action, with the reduction of personal consumption, sorting at source⁸, beach cleaning, and raising awareness amongst others. Half of the participants did not see themselves as “*engaged*” or “*active*” towards the combat of plastic pollution, however, all participants were practicing some of these actions. Over half stated that they tried to reduce personal consumption, as well as finding alternatives to plastic products:

“I try to be conscious about other alternatives. You can try to use less and bring your own reusable bag to the store instead of buying a new one” (Nurse).

“Smaller things like not buying clothes with accumulated plastic, and I try not to overconsume. Rather buy things of quality and think about what you actually need and what one appreciates” (Landscape architect student).

Many participants expressed that they engaged in sorting at source and beach cleaning. The latter also included “*picking five for the whale and plogging*”⁹ as expressed by the social geography student. Moreover, some participants did both actions, while the majority did sorting at source. This is summarised by the landscape architect student:

“We have not done it much lately, but earlier we have cleaned quite big amounts of waste at a summer place. We do not have plastic as a sorting at source at home, but when I am sorting it mainly is plastic in one of the bins since the rest gets recycled”.

A small portion of the participants tried to raise awareness amongst others by debating and “*shocking*” their social circle. This is illustrated by beach cleaner Dory:

“In addition to picking plastic, I try to talk with people about plastic. And I notice that it is fun to talk about how we can avoid the amounts of plastic in nature, and what they think is the best solutions. Not only go out picking, but to show people how it really is”.

This theme illustrates what the participants viewed as their behavioural contribution, and what they perceived as functioning choices and actions towards plastic pollution’s posed challenges. Almost all participants stated that they sort at source and reduce plastic use, while most of the participants who beach clean and raise awareness are from the engaged sampling group.

⁸ Translated from the Norwegian word “Kildesortering”, meaning to sort waste into different sources.

⁹ (1) Campaign for picking five plastic items for the plastic whale (2) Activity picking plastic while jogging.

The last theme in this section is the physical reactions almost all the participants gave attention to in relation to plastic pollution. Most of the participants talked about eating food accumulated with plastic, as plastic particles have moved into the food chain. This topic is illustrated by a comment from the psychology student, and summarises the other's reflections:

"I believe we accumulate more plastic in our bodies than we may think, and that it can have bodily complications. It does not dissolve as normal food. I want to say it has both a mental and physical negative impact. If the earth collapses, we get destroyed mentally, and your body degrades because of the accumulation of plastic".

Standing out from this expression, the formwork carpenter gave a contrasting answer: *"I think we are going to live for just as long as we do now even if we pollute the nature"*. Furthermore, Beach cleaner Nemo highlighted some outstanding illustrations to how plastic may give physical reactions, however, this is more of an indication toward animal impact than human.

"It is shown that plastic is used in treatment plants because plastic has a structure that binds heavy metals. So, the plastic itself is not dangerous to eat, it is the heavy metals that are dangerous. We see this in fish accumulated with plastic, that toxins attach to the organs. It is frightening with plastic. [...] They had goldfishes in one aquarium with plastic granulates from a beach and one without. And it was shown after a while that the goldfishes stopped producing males, it was only female goldfishes left, and the frightening part is that the goldfishes perished. This aquarium was small, and how big is our aquarium which is bathing in plastic".

Almost all participants expressed that plastic pollution give physical reactions, however, most answers related to how we consume ocean food with plastic. This implies a shared perspective between the participants. Only the formwork carpenter and beach cleaner Nemo shared contrasting and outstanding views on the physical reactions to plastic pollution.

Audio-visual findings

The Audio-visuals, suiting the above themes, represent various individual actions, while also touching upon the physical reactions. Firstly, individual action is represented in both the audio-visuals, however, the activities are mostly connected to individual engagement in Asian regions. Beach cleaning is the mayor action represented in the materials, varying from individuals picking to groups cleaning. Moreover, the Tv-auction represents activities to collect money and create awareness. However, these activities will not be elaborated on further because it is part of a specific event and not of the individual daily activities that this thesis seeks to study.

Regarding the health impacts represented in the audio-visuals, both materials discuss this theme in different ways. *Ocean of Opportunities* mainly touches upon the topic by how we consume plastic through our surroundings, similar to how most of the participants also commented on during the interviews. This is explicitly expressed by Karoline Andaur¹⁰:

“[...] we eat plastic and consume five grams of plastic in a week which corresponds to a credit card, through water and our surroundings” (06:35).

Plastic Ocean goes more in depth into the topic of physical reactions and touches upon the themes which beach cleaner Nemo talked about. As the biologist Martin Wagner corroborates, our plastic products contain chemicals which can be of impact to human health through all reproductive problems, obesity, behavioural problems, and neurological problems:

“We find around ten thousand different chemicals [in most of the plastics]. We are talking about a super mixture of all kinds of chemicals [...] One chemical is Bisphenol A, which is well known and disruptive, and that means it is a chemical that messes up with our hormone signals in our body which can affect very many processes” (18:50).

Simultaneously, Geir Gabrielsen¹¹ commented on how plastic pollution in the environment is attracting toxins from its surroundings. This can have an impact on Svalbard’s animal life:

“Plastic contains environmental toxins from when it was produced. But also, when plastic remains in the ocean, it creates a biofilm [which attracts surrounding toxins]. You then get a cocktail of various toxins which exists in the ocean [...]. Some of the toxins impact hormonal systems in the birds [havhesten]” (24:00).

The audio-visual materials express concern regarding plastic pollution with the topics of accumulating plastics through our food, and environmental toxins which can affect hormonal systems. However, these problems may be more connected to animal impact than human health. Moreover, daily individual actions and behaviours have limited representation in the materials, with an exception for beach cleaning as the main activity.

4.4 Interior Collective

The Interior Collective section approaches the cultural and socio-relational influences in accordance with the phenomenon. In a broad sense it is about the participants’ relation to society and how they are affected by or affect their relations, and media attention and influence. Moreover, the Audio-visuals also add a new theme, being the represented values and emotions.

¹⁰ Working as the general secretary for WWF.

¹¹ Researcher from the Norwegian Polar Institute, mainly researching the birds called Havhesten on Svalbard.

Interview findings

The first occurring theme is the relations around us, and then how the participants reflected upon their own relations and the impact these have. The topics were the shaping while growing up, affected by social relations, and generational influence. Some of the participants expressed that their relation and action towards their environmental-friendly behaviour was formed in their household when they grew up, as stated by the nurse:

“I grew up doing no sorting, and I have become better and more enlightened after I moved from home and attained knowledge on how to sort at source to be able to reuse the resources. Meanwhile, I have grown up with not wasting food or buying more than I need, and that is something positive I have taken on¹² in relation to the environment”.

Over half the participants pointed out that they are affected by their friends and social relations. This topic compounded both positive and negative impact regarding how the participants feel that they are influenced. As expressed by the social geography student and the fisherman, by not caring about the environment, one is seen as doing a “*bad thing*”¹³ or that you are “*stupid*”. Meanwhile, some participants expressed gratitude for the engagement that existed in their social circle because it creates engagement in the participants themselves. The social geography student and beach cleaner Nemo illustrate two contrasting views in relation to this topic:

“It depends on who you are with. One has different friend groups, and some are extremely much worse to think about plastic and the environment, and others are among the better. Those who are good at it, affect me to do their good choices, while my friends who are not quite as good, amplify the behaviours I already have embodied”.

“I have conflicting thoughts because I find it exhausting with plastic-shaming. In the environment around me, in my nearest circle, they are very thorough with plastic. And I often get comments like, I clean big amounts of plastic so why do I bother buying fruit packed in plastic for example [...] I feel like this focus makes me less motivated to take good personal choices because the problems are insanely much bigger than this”.

This theme was exemplified by several of the participants, and there were no clear indications to which sample group or background that was playing a role in creating this theme. However, this theme illustrated how the participants are affected by their relations around them in both a positive and negative way, implying how it forms both “*good and bad*” behaviour regarding plastic pollution and the attitudes toward plastic pollution.

¹² Translated from the Norwegian phrase “tatt med videre”.

¹³ Translated from the Norwegian word “uting”.

As for the theme generational influence, it constitutes how different generations affects the participants attention to plastic pollution, implying that it is connected to the relations around us. However, it is an important topic as all participants had strong opinions about it. Over half of the participants explicitly stated that the older generation have a “*do not care attitude*” and “*bad habits*” in relation to plastic pollution. On the other side, the younger generation are viewed by several of the participants to “*care more*” and to be “*more engaged*”. This common perspective is illustrated by the formwork carpenter:

“I think the younger generation is more engaged¹⁴ to reduce plastic and pollution than the elder generation. When you go to an older man, he thinks it should be like this, this is how it always has been. They are a little stubborn about things. Younger people see new solutions, they see the positive and think forward”.

When many of the participants reflected upon why this common statement was the case, some highlighted that the conditions have changed over time. The psychology student expressed that “*the times have changed [...] plastic has become one of the main resources we use today, compared to what we used before*”. In relation to this, some of the participants talked about how the generations have grown up differently. This is expressed by the fisherman:

“It probably is the different time growing up and what time we live in now, compared to what they did twenty or fifty years ago. It was normal throwing things in the ocean, so there has been a change, but the elder boys have a habit of throwing it at sea because they are used to it. The new generation has grown up differently and is maybe of a more enlightened society who wants to take hold of the problem”.

Meanwhile, and in contrast to the topic mentioned above, a couple of participants pointed out that there has been a positive change in the elder generation’s approach and responsibility towards plastic pollution. This is stated by beach cleaner Dory:

“I feel that the generations before me have a great sense of responsibility, and that they partly feel that plastic pollution is their fault. It may not be those who are most out cleaning, but you may see it more in the money that is donated”.

This theme of generational differences was expressed by and engaged all the participants. This was also revealed by the participants to be grounded in both experiencing the differences, and by having a personal perception of the differences. Moreover, this theme is indirectly connected to the participants perceptions on responsibility in relation to the different generations.

¹⁴ Translated from the Norwegian phrase “er mer på”.

The last theme in this section is media attention, including how the participants get information through social media, how audio-visuals represent plastic pollution, and the narratives told in media. Over half the participants talked about videos and information attained from social media during the interview. Some examples were “*the turtle with a straw in its nose*”, “*influencer tips*” and “*the plastic whale*”. The topic is expressed by the fisherman:

“One is reminded about it in media all the time, they are very alerted¹⁵. However, it is an important reminder also, you see it daily and you must address it”.

In contrast, the landscape architecture student noted that after watching a documentary, “*one moves on*”. Moreover, most of the participants had not seen the Tv-auction 2020, but the majority gave comments on documentaries they had seen that problematised plastic pollution:

“It feels endless when you see it, because they do not only show Norway, but also South-East Asia for example. What we do in Norway is a lot of pollution, but in Asia it is more. In some ways it motivates and in others it demotivates to watch. But it is also fun to see the increase of people working with plastic” (Beach cleaner Dory).

Lastly, amongst some participants, there was an engagement in relation to what media is presenting, and to what the participants called narratives. This topic included both the representation of generational differences, and the contrasting representation between Norway and Asia. The communication consultant and beach cleaner Nemo both shared this expression:

“The presentation of the younger generation who are going to grow up with this, and the elder who pollutes, it is a narrative which fits in the media picture. When Greta Thunberg represents the younger generation as spokesperson for us destroying the future, it is a strong remedy. And it is partly true, but in my perception, you also have elders that are worried about their children, grandchildren, and themselves”.

“There is a narrative in Norway I think the most over forty believes in, which is that the pollution on Norway’s coast comes from abroad and that Norway has stopped throwing plastic in the ocean. Plastic in Asia becomes a monitor¹⁶, and then we in Norway with the fifth most polluted coastline are like, the plastic may come from abroad, maybe some comes from Norway, but it is worse in Asia, and plastic from there moves to here”.

This theme was broad and occurred during different topics of the interviews. Most of the participants found themselves to be affected by media attention through perceiving videos about plastic pollution and related themes, while the media representation of perspectives and narratives relied on the statements from the participants in the engaged sample group.

¹⁵ Translated from the Norwegian phrase “på hugget”.

¹⁶ This term is used for: (1) monitoring the global plastic pollution (2) distract or change the focus from Norway.

Audio-visual findings

This section contains represented values and emotions in audio-visuals, as they may affect the viewers' perceptions of plastic pollution, and to what is called shock-values¹⁷. This theme is placed in the Interior Collective because it is connected to media attention and influence. The Audio-visuals illustrate impressionistic visuals of plastic pollution, and as stated in *Plastic Ocean* during the illustration of a swamp filled with pollution, it is expressed as a misfortune:

«You see the animal life practically walking in plastic. Getting rid of the plastic and enabling a cleaner nature, that is the least we can do. The nature is somehow trying to hide [the human made plastic]» (Kenneth Bruvik¹⁸, 00:15).

Moreover, the illustrations in *Ocean of Opportunities* alternate between the “good” ocean life, to the “bad” ocean life filled with pollution, creating contrasts that may produce the feeling of responsibility in the viewer. This is illustrated through the following introduction sequence:

“[The Tv-auction 2020] is about some of the most important we have, namely the sea. The sea accommodates infinitely much, everything from tiny plankton to enormous blue whales. The ocean gives us food on the table, it creates jobs, the ocean is the lungs of the globe” (Robert Stoltenberg, 01:45).

“We are unfortunately about to destroy everything. In just a few decades we humans have managed to dump over 150 million tons of plastic, and every minute we dump 15 tons more. Jobs disappear, drinking water gets polluted, animal species become extinct, poverty increases, everything because of plastic” (Mikkel Niva¹⁹, 02:50).

Plastic Ocean also represents generational differences. Kenneth Bruvik highlights that earlier plastic waste was managed by dumping it in the ocean (27:15). Moreover, an unnamed young spokesperson comments on the timely and generational shift in the fishing industry:

“A new generation of fishermen is emerging who sees the environmental side much stronger than [earlier generations] grew up with. Young people see the environmental perspective on a completely different level” (12:00).

This theme illustrates that the audio-visuals have the potential to impact the viewers' own emotions and perspectives of plastic pollution by representing values and emotional scenes connected to the phenomenon, as well as creating knowledge about plastic pollution. Some viewers may not be affected by the presented information from the audio-visuals; however, this theme does illustrate that media is a potential influence of social attitude and behaviour.

¹⁷ My own interpretation of “shock-value” is that presented values are trying to create emotions in the viewer.

¹⁸ Kenneth Bruvik is the program leader and front figure of *Plastic Ocean*.

¹⁹ Robert Stoltenberg and Mikkel Niva is two of the program leaders of the *Tv-auction 2020*.

4.5 Exterior Collective

The last section is mainly about the systemic structures and efforts that exists in society according to the participants, and the impact plastic pollution has on the environment. This includes environmental impact, waste management, and unavailable resources and efforts.

Interview findings

The first theme in this section, is how the participants view the environmental impact of plastic pollution. This topic identified the themes of a distinct impact among countries, and that the marine life and animals are most affected. Regarding the distinct impact among countries, some of the participants commented that other countries, and especially Asian regions, are more affected by plastic pollution than Norway. This is expressed and summarised by the nurse:

“I see that other parts of the world are more affected by the negative consequences. Here in Norway, we still have the possibility to use the drinking and bathing water without it overflowing with plastic. Even though one sees some areas with much pollution, but simultaneously it has not affected us living here much yet”.

All participants pointed out that the ecosystems most affected by plastic pollution are the marine life and animals. The communication consultant summarises the answers given on this topic:

“The ocean is very vulnerable, and we talk about everything from fish, but also smaller creatures with micro plastic in the depths of the ocean, and the consequences of this can be mayor. Whether it is bad for the fish, the animal life in the ocean, or if it affects the corals. It is a concern connected to this, and of course also the bird life. All life is connected to what is happening in the ocean”.

One distinguishing view that occurred in this topic, is to what impact plastic pollution has on the goods of tourist attractions and vacations. This was stated by the social geography student:

“Plastic is mostly about the aesthetic with nature and maybe not only about actively perceiving plastic in the ocean or on land, but also the ripple effects of it being so much. It can ruin future tourist attractions, and in a way, we do not know the consequences to the environment, but also not to the good’s we humans like, such as vacations”.

Expressed in this theme, is what perspectives the participants have on the environmental impact, both through regional impact and to which ecosystems that are most affected by plastic pollution. It is worth noting that the environmental impact was of concern for all the participants, and that the marine life commonly was expressed as the most impacted.

The next theme is the participants background knowledge of waste management. What is interesting about this theme is that none of the participants directly knew what is happening to the plastic waste after it has been disposed, and that most of their answers was “*I do not know*”. As beach cleaner Nemo explains, people are distant to how their waste is managed:

“When people ask me about what is happening to the plastic we pick, I do not have an answer. I think it is insane, that we who clean plastic are not able to tell people what is happening with the waste, and we have direct contact with the waste management companies. And this also puts in perspective how everyone in the society is so distant to what is happening with their waste”.

A few participants reflected upon the management validity. The landscape architect student reflects a scepticism; “[*plastic waste*] probably gets incorrectly sorted”, while the fisherman is acceptive toward the recycling of bottles²⁰; “*Recycling bottles is a good example. [Plastic items] could have been more expensive, and you get forced to take the choice*”. When asking the participants about management strategies, the most common topics between the participants was that the waste is incinerated or recycled, as illustrated by the fisherman:

“It probably gets picked up by a truck and taken to a recycling station. Plastic types are sorted and then probably it gets burned or made into other products. That is probably what is happening, and many of the plastic bags and bottles can be used again”.

Furthermore, over half of the participants expressed that the waste management is weaker or non-existent in other countries. This is presumed and illustrated by the psychology student:

“Probably there is a big problem in relation to the difficulty in putting waste management into place because of the lack of resources or a bad government”.

Related to this, the social geography student expressed a difference in attitude between two specific countries, defined here as the “hidden” and “obvious” way of polluting:

“It is clear from the vacations I have been on, you see more waste on the streets in other countries. I was on a boat in Sri Lanka, and the skipper told us to throw the styrofoam from our lunch in the ocean. We were all from Norway, and nobody threw it in the ocean. We are taught that this is not okay, we do not pollute in such an active way. The pollution in Norway is more hidden, we do not pollute obviously”.

Waste management was talked about by all the participants; however, a broad and split perspective was given in this theme. This is reflecting what knowledge that exists or are lacking between the participants on what is happening with the waste after it has been disposed.

²⁰ Translated from the Norwegian word “panting”, meaning to recycle bottles. When buying bottles, there is already an extra price in the item to create incentives to come back and recycle it, to get the money back.

Many of the participants were engaged in talking about the unavailable resources and efforts in our community, including the lack of guidelines and information, engagement availability, and alternatives to plastic. The communication consultant commented on how slow incentives toward plastic pollution moves forward, which negatively affects his motivation:

“When feeling like things stands still²¹ you do not get motivated, and it is easy to give up and not take the fight because one feels that companies and the society do not wish to listen or do not do anything. Getting a breakthrough and to feel propulsion I think is important for getting people engaged and wish to have an influence”.

In relation to the note above, some of the participants expressed that there is a lack of guidelines and information regarding how to approach the plastic pollution challenges. Not enough efforts are put forward to create incentives in the society. This is illustrated by two of the participants:

“If I were to be more engaged, I would need to know better what I could do for making a difference. What one is notified about now, I do not feel is enough. That is why I expect the system to do something about it” (engineer student).

“It is tragic and frightening how one keeps going on, and that there is not created more laws about how to utilise the nature and resources” (Landscape architect student).

Half of the participants expressed the lack of engagement availability in their community. One reoccurring example was the “*missing bins in public places*” given by the social geography student and beach cleaner Dory. The nurse summarises this availability:

“Simplify the engagement. Many refrains from contributing because it is difficult to find out how. It would have been simpler to engage in beach clean-ups for one day without committing to an organisation. For many this is the challenge”.

The participants commented on alternatives to plastic connected to the practicality and necessity of plastic products, while all the participants expressed opinions about the price. As the communication consultants illustrates, environmental-friendly products should be cheaper:

“Price of course has a say in this. If the item is more expensive than the one in plastic, then it comes to a point where I think the price difference is so big that it is no point. In this way I hope cheaper alternatives not necessarily are packed in plastic. This is an effective measure to create sustainable incentives”.

Highlighted here are some given examples from the participants on how the community can create more incentives. The lack of resources and efforts are connected to the implied role of the government, and how the collective system takes a responsibility toward the challenges.

²¹ Translated from the Norwegian phrase “stå I stampe”.

Audio-visual findings

The audio-visuals represented the topics of ecosystem impact, pollution differences including the auction contributions, and waste management. The ecosystem impact of plastic was represented mainly to affect the ocean life through *Ocean of Opportunities*, but also to affect the environment through plastic toxins as represented in *Plastic Ocean*:

“[plastic pollution] threatens the oceans, and it threatens all life. Turtles eat plastic bags because they think they think it is jellyfish. We are dependent on clean oceans, the oceans are the very basis of life” (Karoline Andaur, 06:35-13:45).

“We get another environmental toxin which is foreign to nature [...] which spreads in water and air and enters the food chain and is a threat” (Marte Haave²², 39:50).

The Tv-auction is funding four Asian countries with systems to raise awareness and education, improve waste management services, target densely populated areas, and change the attitude toward plastic pollution (*Ocean of Opportunities*, 47:15). The pollution differences are in the Audio-visuals represented through Asian regions lacking resources and management systems:

“[they] do not have any place to throw their waste like we have here at home with waste bins that are collected. Simultaneously with an enormous use of single use plastic, these often ends up in nature and in the ocean” (Karoline Andaur, 06:35-13:45).

It is important to illuminate that the audio-visuals represent individuals in Asian regions that are trying to create management incentives by cleaning beaches, recycling, and reuse. The Norwegian waste management is expressed to be national frameworks, including product laws, reuse, and recycling. As represented in *Ocean of Opportunities*, we have the policy strategies of UN’s “zero vision of plastic”, producer responsibility, and plastic smart cities²³(02:22:15, 02:41:45). However, it is also stated that international laws and solutions does not yet exist. *Ocean of Opportunities* also highlights Norway as world leaders within the strategy of recycling bottles, and approach the value of recycling and reuse (01:11:00). *Plastic Ocean* further highlights the laws for fishing gear. *Plastic Ocean* also identifies that the chemicals used in plastic products, if they are perceived as harmful, are replaced with similar chemicals which is not regulated (10:55, 17:25), indicating a transfer from one chemical to the other. To sum up this section, The audio-visuals seem to present a contrasting view between Norway and Asian regions in relation to how big of an impact plastic pollution has, and which management strategies different regions have. However, the audio-visuals also put into view the challenges existing in Norway, showing a transparency of the plastic pollution problem in Norway.

²² Working for the Norwegian Research Center (NORCE).

²³ Defined as cities taking smart choices regarding plastic (NRK, 2020).

Chapter five

5.1 Discussion

The aim of this research has been to explore how the experiences, meanings and management of plastic pollution impact health and well-being in everyday lives. This chapter will elaborate on the complexity between the four quadrants and how they interact (Figure 2), even though the quadrants will be artificially separated in the following sections. I will discuss the implications of the most prominent themes that emerged during this study and situate them in existing literature. This chapter is divided into six sections; the discussion will firstly approach the impact of plastic pollution (5.2) by looking at the environmental and human health, as well as the perceived regional impact. This section also links the findings with wider development issues and relevant SDGs. Secondly, the discussion will turn the focus to the interior drivers (5.3) of attention, encouragement, and pressure for change. The third section will elaborate on the exterior drivers (5.4), containing the availability of strategies and information and the 3R rule. These two sections (5.3 and 5.4) start to demonstrate the interconnection between the four quadrants. The last themes to be discussed are the responsibility issue (5.5) and the relation between plastic pollution and well-being (5.6), and how they express the complex relation of the four quadrants. Lastly, this chapter will present the main limitations of this study (5.7).

Figure 2: Themes and the interactions between the four quadrants.

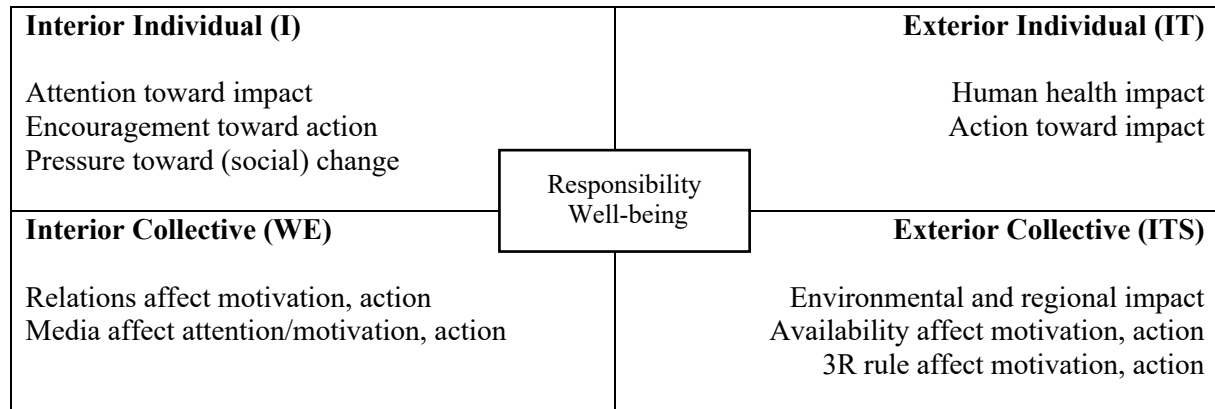


Table 4: The dimensions of well-being inspired by “doing well and feeling good” (White, 2010).

| Material dimension of doing well (MD) | Subjective dimension of feeling good (SD) |
|---|--|
| Welfare and standard of living, infrastructural access to resources/services, health, environmental quality | Personal perceptions, relational positions, satisfaction with access/support, sense of influence |

5.2 The impact of plastic pollution

In this section, some of the impacts of plastic pollution identified by the participants are discussed in the context of wider development debates and relevant SDGs.

5.2.1 Environmental and human health

The findings indicate that the participants are aware that plastic pollution poses a threat to environmental and human health. All the participants, as well as the audio-visuals, stated that the marine ecosystems and the animal life are most impacted. This is supported by several studies, informing us that plastic pollution gets transported through terrestrial, atmospheric, and marine systems and into the ocean, impacting the natural surroundings and wildlife (Li et al., 2020; Waring, Harris & Mitchell, 2018; Windsor et al., 2018). Nevertheless, harm is already done when plastic enters the environment because it breaks into smaller pieces, making it difficult to remove. In addition, and to grasp how extensive the problem is, the essential conditions for a problem being seen as a planetary boundary threat is that it impacts on planetary scale, is poorly reversible, and disrupts environmental processes. Villarubia-Gómez, Cornell and Fabres (2018, p. 217) explain that marine plastic pollution meets the conditions of irreversibility and planetary-scale. As plastic pollution is a global phenomenon, and that the findings seem to indicate a common knowledge ground targeting the marine ecosystem challenges, plastic pollution is highly linked to the conservation of life below water (SDG14). This is evident as target 14.1 is to “*prevent and significantly reduce marine pollution of all kinds*” (United Nations, n.d.). Ocean of Opportunities express that the ocean is the lungs of the globe and that it provides the ecosystem services we need. Several participants commented that all life is connected to the ocean. By then challenging this system, we also challenge ourselves.

Plastic pollution connects to the protection of life on land (SDG15). The focal point here is the challenges plastic pollution poses on wildlife and human health, and the disruption of environmental processes. Many participants, including the audio-visuals, shared the perception of plastic pollution entering our bodies through ingestion, and that we consume five grams of plastic per week. Williams and Rangel-Buitrago (2022, p. 10) reveal that people who consume plastic packaged products almost have a doubled plastic particle amount accumulated in their bodies, while studies specify that some instances of plastic accumulation in our bodies can be connected to oxidative stress and inflammation (Li et al., 2020, p. 581; Waring et al., 2018, p. 66). From what has been presented, plastic pollution may challenge human health by affecting food security (SDG2) and water availability (SDG6). A related issue, shared by beach cleaner Nemo and Plastic Ocean, is the impact from chemicals accumulated in plastic. Plastic is viewed

to impact the hormonal systems through the chemical Bisphenol A, and by attracting environmental toxins. Supported by Li et al. (2020, p. 580), plastic act as vectors for toxins and heavy metals, and has been observed to release toxic chemical into the environment such as Bisphenol A. Plastic pollution may then pose a threat to human health and well-being (SDG3) through both consuming plastic products, and by ingesting polluted water and food. However, there is still a question of how and to what extent it impacts human health, as the challenges more evidently suggests an impact on nature. Simultaneously, Plastic Ocean express that plastic is another environmental toxin which is “foreign to nature”, implying that we do not know how the nature will react to this threat. It is though evident that plastic pollution in a way transform the marine and terrestrial environment and affects the health of living organisms. These findings may imply that plastic pollution in fact disrupts environmental processes as part of being a planetary boundary threat. In the later sections, I will elaborate on how these environmental and human health challenges create both interior and exterior drivers.

5.2.2 Differentiating the regional impact

Plastics is undeniably affecting the visible ecosystems and posing concerns to health because of the environmental pollution. Nonetheless, when considering the life cycle of plastics²⁴, it influence sustainable and safe communities (SDG11), sustainable consumption and production (SDG12), and climate action and impact (SDG13). According to Williams and Rangel-Buitrago (2022, p. 3-5) plastics is an environmental challenge regardless the management methods due to the greenhouse gasses emitted by production or incineration, the environmental pollution, or that it gets recycled into lower quality materials. When I asked the participants about the existing waste management methods, the most common answers were that the waste is either incinerated, or recycled. The fisherman illuminated a probability that plastic is sorted at source and afterwards incinerated or recycled. This shows an agreement with the literature (Baran, 2020, p. 7), that Europe prefer energy recovery with the rate of 41.6% and recycling with 31.1%. Ritchie and Roser (2022) illustrate that developed regions such as Europe produce most of the plastic waste, while developing regions like Asia generate most of the mismanaged plastic waste. Dauvergne (2018-b, p. 25) highlights Asia as the leading source of marine plastic pollution because of an increasing plastic production and consumption, the import of waste from other countries, and an insufficient waste collection and infrastructure. Many of the participants, and the audio-visuals, expressed that Asian regions are more affected by the

²⁴The life cycle of plastics includes the steps from extraction and production to the consumption and disposal (Williams & Rangel-Buitrago, 2022, p. 3-5).

negative consequences than Norway, and that this is a products of weaker and non-existent waste management. However, the practice of plastic waste exportation between borders may “transfer” this instance and encourage the consumption in “artificially cleaner countries” (Barnes, 2019, p. 7). Likewise, Nielsen et al. (2020, p. 4) points out that a handful of developing countries account for the majority of the pollution, but that these also import waste from developed countries. It is worth mentioning that Norway is part of the Basel-convention that prohibits the export of hazardous waste to vulnerable areas, including plastic waste since 2018 (Hold Norge Rent, n.d.). However, the consumption of plastics may inevitably remain in many developed countries because the posed challenges is experienced as a “transferred burden”.

Both the audio-visuals represented the contrast in pollution and management between Norway and Asian regions. Males and Aelst (2022, p. 41, 45) found the agenda-setting theory to assume that media filters and shapes stories, and creates public attention towards a specific issue. Likewise, beach cleaner Nemo and the communication consultant pointed out that media create “narratives”, being that the plastic pollution in Norway mainly comes from Asian regions and not from Norwegian sources. Without implying that this is done on purpose, media coverage may then work as a distraction by moving the attention away from what is happening in Norway. In turn, this can impact how much engagement is put into the combat of plastic pollution. This distraction is visible as all participants was uncertain to how the plastic waste is handled after disposal, and may reflect that Norway is one of the artificially cleaner countries. Yet, plastic pollution is still happening in the regions with the most visible challenges, contradicting that this is merely an experience issue. In addition to this statement, it should be linked to what the social geography student expressed as the “hidden and obvious way of polluting”. In Norway, we do not necessarily throw waste directly into the ocean because we are taught that this is not okay. However, we are also ignorant to what is happening with our waste after we have disposed it. This attention illustrates not only a regional difference in how much is being consumed and disposed, but also a difference in attitude toward plastic pollution. Asian regions are in fact more polluted than the Norwegian coast; however, it is necessary to uncover the impact of environmental pollution in our own back yard as this may be perceived from a distance, and in turn create individual waste mismanagement in the whole society.

5.3 Interior drivers

The plastic pollution challenges have increased environmental attention and the interior drivers for change. This section discuss the interior drivers and motivations for socio-environmental change, and how these interact with each other as well as with the exterior systems.

5.3.1 Attention toward impact

The participants felt conscious toward or had a positive relation to the environment, indicating that they prefer environmental quality. As recalled, plastic pollution poses a threat to the ecosystem services we need, as well as polluting the environment. The findings illustrate that by perceiving or thinking about plastics, it seems to create emotional reactions (I) toward the challenges (ITS). The implicit challenges here is the pollution, as well as the plastic products on the market. Some of the participants had overwhelming reactions toward the challenges, like “feeling harmed” or “shocked”. In addition to the attention that is produced by perceiving harm as presented in the literature (Turner, 2021), another study found an ambivalent relation in attitudes toward plastics, including positive and negative incentives (Hahn, Buttlar & Walther, 2021, p. 7-8). Some of the same participants that were expressing these physical reactions, were not extensively engaged in individual action (IT). Consequently, the attention given toward plastic pollution may then be connected to the interior motivational factors rather than the perceived harm. One reason for this may be what the literature presented as “out of sight out of mind” (Barnes, 2019), that after individuals have disposed their waste, they are distant to the impact. This may entail that those who are not exposed to environmental pollution, for example through engagement and activities, does not feel personally affected by plastic pollution.

Media may as well play a role in creating individual attention because it works like a platform for sharing information and knowledge. Plastic pollution has an increasing global representation in media, simultaneously as Norway seems to have increased their media attention through the examples of the Plastic Whale, Ocean of Opportunities, and Plastic Ocean. Bailey (2022) points out that media (WE) have been an important catalyst for the attention and concerns (I) regarding plastic pollution, and that social media has become a primary source of information for many individuals. This may also indicate a reason why the youth is engaged. The fisherman expressed that media reminds us about the challenges daily, which in turn creates incentives to address the problems. Social media circulates information in society and impact on the likelihood of generating environmental action (Boulianne & Ohme, 2021, p. 14). Many participants talked about being influenced by media attention through attaining tips and information, including “Picking five for the whale”, “influencer tips”, and “the turtle with a straw in its nose”. Likewise, Olsen, Nogueira, Normann, Vangelsten & Bay-Larsen (2020, p. 5) found that the increased awareness among Norwegian fishers partly is because of the media coverage, and explicitly the plastic whale which worked like a wakeup call. Media attention (WE) in the Norwegian society then interacts with individual attention and motivation (I), which in turn has the potential to create action (IT) toward the challenges (ITS).

5.3.2 Encouragement toward action

Boulianne and Ohme (2021, p. 15) elaborates that there exists a correlation between the environmental concern, and the willingness to sacrifice for the protection of the environment. This indicates that there exists an interaction in both directions between individual motivations (I) and the environmental impact (ITS). To amplify, several of the actively engaged participants illustrated that their motivation toward action mainly was grounded in the environmental quality, and the contribution for change social. Likewise, the audio-visuals represented the motivational factors for cleaning plastic to be the feeling of contribution, and to live in a cleaner environment. These findings are supported by Bergstøl (2021, p. 20), revealing that the motivations behind beach cleaning is the production of knowledge and change of attitude (I), and the conservation of the environment (ITS). These interior drivers may link to what Wang, Mo, and Wang (2022, p. 2-3) highlights as individual-level motivation formed by self-achievement and self-expression. By engaging in plastic pollution activities, individuals may attain a feeling of doing something good for the environmental quality and the society they are part of, and in turn obtain a personal achievement of contribution. Although, this feeling may also be connected to personal conscience and the feeling that it is the right thing to do. In addition to the interaction between the interior individual and the exterior collective, it also seems to be an interaction with the interior collective. The engaged participants show expressions of advocacy for social change with the intent to reduce the pollution impact.

To what has been discussed, people can be motivated to change incentives when believing that their gesture is contributing to change. In addition, when individuals believe that everybody else is doing a gesture, it can also influence their motivation toward action (Willis, Hardesty & Wilcox, 2021, p. 6). What was found among the participants, was an expression of how the society interact with their attitudes, and how their relations affected their engagement. This implies that social relations (WE) interact with individual motivation (I) and behaviour (IT). Wang et al. (2022, p. 3) points out that collective-level motivations are shared norms that influence and pressure individuals by reinforcing environmental intentions. In the first instance, some of the participants talked about their behaviour and attention being shaped while growing up, as the household had specific attitudes regarding waste handling and consumption behaviour. Likewise, the literature (Nairn, 2019) expressed that by perceiving role models engage, it creates motivation. Shared attitudes and behaviours in a household may then create individual incentives to act. However, the nurse also expressed that these behaviours could change when attaining new knowledge that is external to the household, which may indicate that their friends and social circle also has an influence.

5.3.3 Pressure toward change

Many participants felt affected by their social circle of friends. As expressed in the literature (Nairn, 2019), activism generates an identification with the collective and the feeling of a shared burden. Some participants expressed gratitude for the engagement that existed in their social circle because it encourages personal engagement. As the social geography student expressed, friends with good plastic behaviour creates new incentives, while friends with bad attitudes amplify already existing incentives. Simultaneously, beach cleaner Dory tries to “shock” her social circle by talking and showing them the impacts. This may illustrate a way individuals try to “enlighten” their friends (WE) to act (IT) in specific ways toward social change. These illustrations highlight an interaction in both directions between interior individual and interior collective. However, this issue contains both a positive and negative influence. Beach cleaner Nemo stated that “plastic shaming”, or being criticised for buying plastic packaging, creates demotivation toward plastic behaviour. Plastic shaming may then be connected to doing a “bad thing”, reflecting a negative criticism or conscience rather than positive encouragement. These interactions may indicate that some individuals feel like the problems cannot be solved solely on their own efforts, and that bigger things need to happen (Hahn et al., 2021, p. 8). However, it is evident that relations and social norms has an impact on individual incentives.

Media produces information and attention toward plastic pollution; however, the findings also illustrate how media may affect individual incentives. Williams and Rangel-Buitrago (2022, p. 3) illustrates that by watching David Attenborough’s Blue Planet, it can create a guilt feeling toward plastic pollution in the viewer. The exposure to visuals of harm, like the plastic whale or a polluted ocean, may then create a feeling that this must be addressed. Likewise, Ocean of Opportunities illustrate contrasts for the viewer, switching from a clean ocean thriving with life to a damaged ocean accumulated with plastic. This may create shock-values (WE) regarding what we are losing if nothing is done to combat plastic pollution, and then advocate for attention (I) and action (IT). However, in some instances, the viewer may not be affected enough for creating future change. This is exemplified by the landscape architect student, pointing out that one is engaged during a documentary but forgets and moves on after the visual information is turned off. This may be connected to the out of sight out of mind as mentioned earlier. To recap this issue, media attention can affect individual perceptions and emotions through the feeling of guilt, the relation to the ocean life, attitudes and beliefs toward the problem, and to create knowledge of plastic pollution. It is then visible that media coverage (WE) has the potential to influence individual attention (I) and engagement (IT) in the society.

5.4 Exterior drivers

Exterior drivers like policy efforts and individual resources are required to be put into place for enabling the combat against plastic pollution. This section elaborates on the exterior drivers in the Norwegian society, and how these interact with each other and the interior motivations.

5.4.1 Availability: strategies and information

Policy guidelines and information have the potential to influence the whole society if they are adequately enforced. Barnes (2019, p. 7) brings up that leadership from the national government is required to tackle the plastic production, consumption, recycling, and clean-ups. The Norwegian policy appears to have shifted their incentives to amplify the strategies toward plastic pollution (The Norwegian Departments, 2021). However, to which extent these interventions work in practice is another issue. Some of the participants feel a lack of propulsion or that the development regarding plastic pollution does not seem to go forward. Davison et al. (2021, p. 2) points out that in terms of public perceptions, most of those who live in European countries agree that there is a need for more authoritative plastic initiatives. The communication consultant expressed a discouragement when one feels that companies and the society does not wish to listen or do anything. This expression highlights an interaction between the policies and efforts (ITS), and the motivation (I) and engagement (IT). The participants communicated about a lack of guidelines and information, leading to the individual decrease of motivation and understanding of what to do. The nurse expressed that many refrains from contributing because there is a lack of information on how, and the engineer student shared that she would need more information on what to do to make a difference. This is supported by Soares et al. (2021), illuminating that knowledge and information amplify positive attitudes and action in individuals. The fact that many of the engaged participants did beach cleaning (IT) and tried to raise awareness amongst others (WE), demonstrate this relation. In addition, Ocean of Opportunities present beach cleaning as “tangible” for everybody. However, some participants called out a lack of engagement availability (ITS) because they did not have access to information or resources. In addition, Clark, Mulgrew, Kannis-Dymand, Schaffer and Hoberg. (2019, p. 652) notes that behaviours mainly is shaped from regulations and availability, and awareness campaigns. This unavailability was reflected to be the challenges of committing for many of the passively aware participants, and that there is a need to “simplify the engagement”. Policy efforts and allocated resources (ITS) in the exterior collective is then evidently affecting the environmental attention (I), and if action (IT) is tangible in the society.

5.4.2 The 3R rule: Reuse, reduce, recycle

One of the most widely advocated methods used for national plastic waste management, is the 3R rule (Da Costa et al., 2020, p. 9). The findings illustrate that the majority of the participants did sorting at source (IT) for their waste to be recycled (ITS), while some participants expressed the recycling of bottles as a positive strategy. Ocean of Opportunities present Norway as the leading country in the recycling of bottles, however, this does not include plastic packaging or other plastic items. Plastic politics mainly focus on easily governed objects like plastic bags and bottles. This is grounded in the complexity of for example plastic packaging; how it end up in the ocean, the toxicity for health, waste handling and recycling, and the production of better alternatives (Nielsen et al., 2020, p. 9). The landscape architect student believed that the plastic waste likely gets incorrectly sorted in the end either way. Likewise, Milios et al. (2018, p. 180, 187) notes that only a fraction of plastic materials is reused and recycled. This may be since many products are mixed and multi-layered, implying that much gets incinerated because of the low recyclability (Mørtvedt, 2020). Despite that many plastic products are not recyclable (ITS), a high consumption remains (IT). Therefore, it is important for the politics to also promote conscious consumption (I) that can provide social innovation (Baran, 2020, p. 16).

The literature (Marazzi et al., 2020; McCallum, 2018) highlights that the main individual strategy is to reduce plastic consumption. Simultaneously, many participants tried to reduce their personal consumption and to choose alternatives to plastic (IT). To be conscious about other alternatives and to consume less, may be of the most available individual strategies. However, all the participants commonly stated a lack of sufficient alternatives to plastic (ITS), expressed as being connected to the price and functionality of the products. As recalled from the literature (Milios et al., 2018), plastic alternatives have a lack of supply and demand because of insufficient price, traceability, and recyclability. The communication consultant expressed an aspiration (I) for plastic-free alternatives to be cheaper because this is an effective measure to create “sustainable incentives” (IT). In contrast, Williams & Rangel-Buitrago (2022, p. 11-12) indicate that consumers are willing to pay more for sustainable packaging across a diverse set of countries. However, this also requires the possibility for consumers to recognize if the products can be sorted and made into something new. The 3R rule must then be adequately enforced by approaching the product design for reduction and reuse, that involves measures from the government and producers, and a change in consumer behaviour (Prata et al., 2019). It is thus evident that efforts and resources allocated from the government (ITS) are affecting the individual motivation (I) and action (IT). The product design influence how the participants engage in the 3R rule because plastic products in many instances are insufficient.

5.5 Who is responsible for plastic pollution?

The participants shared a common problem statement on where to place the responsibility for plastic pollution. The responsibility issue was visible throughout the whole research and highlight an interaction between all the quadrants. This section will approach this issue.

5.5.1 Inspiration toward individual responsibility

Many participants commented on the consumer responsibility with a split on individual and non-individual responsibility. Taking action for personal choices is evidently contributing to a cleaner environment, including the strategies of the 3R rule, beach cleaning, and to create awareness. Plastic Ocean stated that “we are all part of the problem”, implying that each individual should take responsibility (I) for their own choices (IT). Even though one individual may not directly pollute the ocean, all of us are part of the consumer society. Moreover, by being part of this consumer society (WE), it is inevitable to not take part in the impact of the life cycle of plastics and environmental pollution (ITS). This reflect that individual consumer choices (IT), as well as beach cleaning and creating awareness, has an influence in the reduction of environmental impact (ITS). However, Williams & Rangel-Buitrago (2022, p. 6) points out that plastic-free alternatives from toothbrushes to drinking straws “*remain a niche market in a very large ocean of plastic waste*”. Even though the consumer products accounting for 15% of the identified pollution in Norway is reduced, it will not necessarily affect the fishing industry, which stands for 46% of the identified pollution (Norwegian Ministry of Climate and Environment, 2021). The social geography student noted that we do not really have individual responsibility since bigger things need to happen for something to actually change. In this manner, individuals may believe that their efforts cannot solve the problems solely alone, and then not experience individual responsibility (Hahn et al., 2021, p. 8).

As minor changes has been done to the plastics on the market (Mørtvedt, 2020), and that the consumption of plastic is not visibly decreasing (Norwegian Retailers’ Environment Fund, 2020), it is evident that the majority of the policy strategies (ITS) suggest a change in individual behaviours (IT) through the 3R rule. Nielsen et al. (2020, p. 2) illuminate that the longer we move to the end of the life cycle of plastics, it is more broadly understood as a societal problem. This leaves the entire production process behind, when in fact 20 petrochemical companies produce 55% of the world’s plastic waste (Williams & Rangel-Buitrago, 2022, p. 3, 10). In addition, one study (Deshpande et al., 2020) points out that Norwegian commercial fishing generates 4000 tons of plastic waste annually, while an individual Norwegian only generates 101 kg annually (Norwegian Retailers’ Environment Fund, 2020). In this context,

about half the participants perceived that producer responsibility and a change in the marine industry had a bigger impact than individual action. This was due to the perception that bigger corporations (ITS) have a greater influence for social change (WE) and the reduction of impact (ITS), than what one feels as an individual (I and IT). Likewise, Bullock, Joyce, and Collier (2018, p. 151) found that authorities and marine agencies are publicly perceived to have a responsibility in providing environmental quality. To exemplify, the fisherman expressed that you get forced to take the choice when policies create incentives like the recycling of bottles. This is one example of how big of an impact policy efforts may have, as this measure made Norway a world leader in the recycling of bottles. However, this also illuminates an interaction between policy efforts (ITS) and individual behaviour (IT) in both directions, as this measure would not work if individuals did not comply. This issue may call for an attitude change in the consumer society. As the social geography student expressed, we have the “consumer power” (I) to create social change (WE). As presented in Ocean of Opportunities, Simen Knutsen co-started a collective cleaning project because there was no one else cleaning the area. This may imply that individuals have the responsibility to engage and demand for change, while the exterior collective has the responsibility to allocate efforts and resources for individual engagement. Moreover, it also illustrates that individual motivation (I), and action (IT) has a bigger impact on environmental (ITS) and social change (WE) than what may be perceived.

5.5.2 Recognition toward collective responsibility

In the fact that the engagement of individuals impacts the behaviour of other individuals, it indicates a responsibility issue because individuals are shaped while growing up, and influenced by friends. Therefore, this section will approach the responsibility dilemma allocated in the generational differences. All participants shared strong opinions about younger generations as “caring more” and that older generations have a “do not care attitude”. Boulianne and Ohme (2021, p. 15) express that generations are marked by a different set of formative events that shape their views about their ability to influence the socio-political community. Likewise, Olsen et al. (2020) found that younger generations are more sensitive to the pollution, and that they have different attitudes. This may indicate that community processes (ITS) influence shared attitudes (WE), which in turn will influence the interior and exterior individual. As some participants notified, plastic has become one of the main resources compared to what we used before, and we find it in everything we buy and consume. This timely shift may have produced a “formative event” that differentiates the generations. Therefore, this issue expresses an interaction between the different generations (WE), and their environmental attention (ITS) and

behavioural incentives (IT). This also includes a connection with what infrastructure and policies (ITS) that exist in society. Products one finds on the market, economic incentives of recycling bottles, the reduction of consumption related to specific plastic items, as well as the attention and information about the challenges; they are all in many instances influenced by the exterior collective through policy efforts and frameworks. To amplify this statement, in 2021 Norway removed specific plastic items from the market through the “single-use plastic directive²⁵” (Norwegian Environment Agency, 2021). This did not only affect the market and the producers of plastic items, but also the consumer availability to plastic products, “forcing” the consumers to take environmental-friendly choices. It is though visible that policy efforts can have a major impact on the incentives that is created in the Norwegian society.

Individuals are not only influenced by policies, but also by their household and friends. As the nurse expressed, she has become better and more enlightened after she moved from home. To not say that all growing up shares this experience, this is merely to exemplify how older generations may affect individuals. This is supported by the communication consultant expressing that that there exists as much concerned parents and grandparents as it does concerned youth. Moreover, this relational influence imply that older generations (WE) have a responsibility to act as role models for creating environmental-friendly incentives (I and IT) in younger generations. Not enough with that, and to the fact that the literature suggests that younger people tend to be more concerned and active mainly because of the increased exposure to information (Lorenzini et al., 2021, p. 9-10), it is also their responsibility to create awareness among the older generations. This suggests an interaction in both directions with the individual motivation (I) and action (IT), and the shared attitudes (WE) in the society. Another concern here is if this interaction uses the motion of encouragement or pressure. This is evident as some of the engaged participants shared contrasting motivation. On one hand friends can “amplify” good behaviour, while on the other, this influence may “criticise” and demotivate toward taking good personal choices. In turn, and despite the form of the motion, this influence impact the environment (ITS) either in a positive or negative direction. This issue suggests that the interior collective have a responsibility for creating attitudes (I) and behaviour (IT) among individuals, as well as the responsibility of policy efforts (ITS) to allocate the right resources and incentives in the society (WE). The collective quadrants should take more responsibility and caution when approaching the incentives in society, because this in turn will affect individual attitudes and behaviour toward plastic pollution.

²⁵A directive from the European Union, regulating and prohibiting specific types of single use plastic varying from straws and cutlery to fishing equipment containing plastic (Norwegian Environment Agency, 2021).

5.6 The relation between plastic pollution and well-being

Until now, the discussion have separated the quadrants and analysed the interactions between them. This section will approach the relation between plastic pollution and well-being in its objective and subjective dimensions (table 4) through the perspective of all quadrants.

5.6.1 Societal drivers and well-being

“To reach a state of complete physical, mental and social well-being, and individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment” (World Health Organization, 1986).

It is evident that the Norwegian government has amplified the attention toward plastic pollution. Earlier, it was normal disposing waste in the ocean, reflecting that there has been a change in how we behave towards waste. Despite that policy drivers have the potential to affect what attitudes is produced in society, the participants called out a lack of adequate guidelines and information. Policy efforts (ITS) may be one of the reasons, among media coverage (WE), that many individuals in the Norwegian society perceive (I) plastic pollution as a transferred burden. As beach cleaner Nemo expressed, it puts into perspective how everyone in the society is so distant to their own waste, illuminating an attitude of “disguise” that is turning the attention away from Norway. This express a well-being barrier for individuals to realise and identify aspirations (I), and to cope (IT) with the environmental challenges (ITS). The communication consultant noted that the feeling of propulsion is critical for creating engagement and the aspiration to have an influence. This construction of an “artificially cleaner Norway” is connected to the welfare and standard of living (MD), and personal perceptions (SD). However, this issue may contribute to improved well-being in the short run, as the personal perceptions of the life standard and environment is perceived to be of better quality than they in reality are. On the other side, this issue will in the longer run impact human well-being negatively by impacting the environmental quality to the extent that we are exposed daily. Beach cleaner Nemo stated that it is easy to blame others for doing worse, but that this does not help fixing the problem in Norway. It is then apparent that these drivers negatively influence societal attitudes, despite the fact that these drivers also have a potential to increase attention and action. If we keep transferring the burden between borders or within the community, and in other words does not take responsibility for being part of consumer society, the impact will not change. It may seem as a good solution, as it veils the challenges, but it does not make them go away. This issue impact the well-being in our society by decreasing the awareness and engagement drivers, and in turn reduces the potential to meet the challenges with adequate strategies.

Even though half of the participants did not see themselves as “active”, all participants engaged in at least one action toward plastic pollution. Behaviours like these are not normally seen as self-care, however, Plastic Ocean express that this activity is good for “how you feel”. By engaging in environmental-friendly behaviour (IT), one may satisfy the need of contributing to something good, or receive a feeling of achievement (I) for combating plastic pollution (ITS). However, these activities seem to be determined by the engagement rate of the participants, indicating which activities are most costly for individuals to commit in. The participants know that these activities exist, however, the lack of availability (ITS) to information and guidelines on how to do it create barriers for engagement (IT). To then recall that the motivations toward action is environmental quality and social change, this unavailability may interact with well-being by not enabling the satisfaction of needs or to cope with the environment. The engagement in plastic pollution action can give a feeling of doing something right, and by not doing it, it can create a feeling of conscience or guilt. Therefore, availability towards action is connected to the resource access (MD), and the satisfaction with this access as well as the sense of influence (SD). The participants expressed a dissatisfaction with availability in our society, removing the possibility for these individuals to be motivated and attain self-achievement. This issue illuminate that by improving the availability in the exterior collective, it has the potential to increase a feeling of contribution and well-being.

Social encouragement and pressure can impact our well-being. As recalled, social encouragement may produce environmental-friendly behaviour through perceiving role models engage. An individual attain a feeling of what is the right thing to do, especially if it is the norm. In addition, individuals gets much of their information through media, indicating that this also is a driver for motivation. Shared societal norms (WE) then influence individual attention and aspirations (I) and enable individuals to cope with the challenges (ITS). However, some may try to “enlighten” their friends, while others are critiquing their friends for doing “a bad thing”, and in turn creates a feeling of responsibility. Likewise, media (WE) may pressure individuals by creating a guilt feeling (I) toward the environmental impact (ITS). These social drivers can affect the subjective dimension of well-being by both positively or negatively touching upon personal perceptions, and relational positions in the social circle. In addition, this issue also impact the sense of influence in the manner that it either empower or creates the feeling of incapability to contribute to social change or environmental quality. It is visible that the relations around us (WE) have the potential to affect individual feelings and attitudes (I) toward plastic pollution (ITS), which in turn can impact the aspirations that create action (IT).

5.6.2 Plastic pollution and well-being

“Human health and well-being are considered a physical, social and mental state, dependent, at least in part, upon marine and other ecosystem services, provided by the natural world” (Borja et al., 2020, p. 2).

Bullock et al. (2018, p. 150) found that the coast was perceived to provide a sense of subjective well-being through the benefits of wildlife and the personal experiences of nature. This is visible among the participants as they expressed emotional reactions by perceiving or thinking about the impact. The attention, motivation (I), and action (IT) toward the environmental challenges (ITS) reflect how the participants position themselves in relation to the environment. Likewise, Nielsen et al. (2020, p. 11) points out that plastics presents an increasing politization of humanity’s relation with their natural world. However, those not directly exposed to environmental pollution may not feel personally affected, as it is perceived from a distance. Plastic pollution then affect well-being through both the environmental quality (MD) and the personal perceptions of this quality (SD). The psychology student expressed that environmental quality is essential for our mental health, while the accumulation of plastic in our bodies impact our physical health. This is supported by Borja et al. (2020, p. 2), mentioning that human activities increasingly impact the environmental and human health. However, the participants seems more concerned regarding the environmental quality, than their own health. This may be connected to what Rogers et al. (2012, p. 62) states, that polluted environments on which societies are dependent upon (ITS), contribute to a reduced quality of life and worsened prospects of the future. This indicate that plastic pollution is highly interlinked to SDG3; *“ensure healthy lives and promote well-being for all”* (United nations, n.d). As the plastic life cycle affect the environment regardless the management methods, and that marine plastic pollution may be seen as a planetary boundary threat, it is evident that this phenomenon impact the well-being gained from environmental quality. Human well-being require the avoidance of behaviours resulting in poor health and emotional distress (Rogers et al., 2012, p. 63). The societal drivers that are produced by the challenges of plastic pollution, is indeed pressuring individuals to position their attention and engagement toward the impact. It is then evident that plastic pollution poses a threat to physical, social and mental well-being. It impact the environment (ITS) and conceivably our health (IT) through spreading toxins, it affect our social world (WE) by creating shared concerns and vulnerability, and it influence our mental health (I) by the attention toward harm and the constant pressure for action (IT). To round off, plastics may do our lives simpler in the short run, but in the long run it perceivably will do us no good.

5.7 Study limitations

In order to properly reflect on the trustworthiness of this thesis, it is necessary to highlight the potential limitations of the study design and the limitations that occurred during the study:

Proportion constrains: One of the limitations of this study is that this is a 30 ECTS thesis with a limited proportion of space for the collected data. As this study sought to explore plastic pollution in the integral perspective as well as adding audio-visual analysis it provided context and insight into different perspectives. However, by the limited proportions of space for the findings and in-depth descriptions of the context, it may have affected the possibility to draw broad conclusions based on the collected data.

Participant sample: The short timeframe for data collection and the fact that the study followed a qualitative research design may have affected the findings. By recruiting participants from different backgrounds, I tried to touch upon factors in society affecting the engagement and non-engagement. However, this does not reflect the general population, mainly because it is a small sample size of participation. Moreover, the participants got unequally represented because of the engagement range, even though I tried my best to equally use the perceptions from all participants in the findings and discussion. Despite these constrains, it would have been interesting to recruit a wider range of participants to further explore the variables of engagement and non-engagement, as this was one of the most visible differences between the participants.

Researcher role: Another limitation which must be addressed, is that I as a researcher was an insider to the plastic pollution problematisation, as I have been a beach cleaner myself. I triangulated with multiple collection methods simultaneously as I have communicated the audit trail. However, my background may have affected the information given and received from the data collection and analysis, because of my understanding of this information.

Language: The interviews and audio-visual analysis was conducted in Norwegian as this seemed fitting for the recruitment and study location. I found this method to better allow the participant to freely express themselves, than they would have been able to in English. However, this also implies that the sources of data were translated into English by me as a researcher on a later point, and some of the meanings could potentially have been altered or lost in translation during this processes.

Chapter six

6.1 Conclusion

The aim of this study has been to uncover how the experiences, meanings and management of plastic pollution impact the health and well-being of young adults in Norway in their everyday lives. To approach the complexity of plastic pollution, Integral theory's four quadrants enabled me to explore how different parts of the society influence each other. By diving into the participants' experiences and strategies and how they perceive their collective value and policy systems, this study was able to identify the main impact of plastic pollution and to unveil some of the societal drivers for change. I will now conclude the main findings of this study.

Plastic pollution appear to produce a broad scale of experiences and meanings among the participants. Yet, the findings illustrate that the participants' main conceptualisations of the phenomenon were their attention toward impact and their personal drivers toward action. The participants were in general producing emotional reactions by the perception of harm. However, it is also noticeable that by not being directly exposed to plastic pollution, one may not feel personally affected. Some participants expressed that their personal drivers toward action were the environmental quality and their contribution to societal change. In addition, these motivations seem to be connected to the feeling of personal achievement.

Strategies and actions toward plastic pollution that the participants engaged in were found to be the reduction of personal consumption, sorting at source, beach cleaning, and to create awareness among friends. What came to light here, was that the passively aware participants mainly engaged in the reduction of personal consumption and sorting at source, while the engaged participants represented beach cleaning and awareness production.

In terms of how cultural norms and values interact with the participants' experiences and actions, the findings indicate an ambivalent relation of influence. This includes the interior drivers of encouragement and pressure toward change. The participants expressed that they either were motivated toward incentives, or pressured toward change which in some instances created demotivation. All the participants shared comments about the difference in generations, being that the younger usually was expressed to be engaged while older tended to have a bad attitude. The findings also illustrate that older generations should act as role models, while the younger generations should enlighten older generations. Media coverage is amplified to be an influence toward change. The participants received information from media, interacting with the participants attention and action toward the impact. In addition, media was found to both create a guilt feeling in the viewer by exposing them to visual harm, and to create narratives.

Associated with the interaction between policies and systemic structures, and the participants' experiences and actions, the findings illustrate that exterior drivers have the potential to influence toward change. However, it is also evident that there exists a lack of resources and efforts in the Norwegian society. All the participants were uncertain to how plastic waste is handled, indicating a common knowledge gap among them. However, the main methods mentioned was incineration and recycling, including the validity of recycling. In addition, the audio-visuals represented the regulations of fishing gear and plastic chemicals, and the 3R rule of reduce, reuse and recycle. Yet, the participants shared a lack of policy guidelines and information, and engagement unavailability including the alternatives to plastic.

Responsibility was found to be a complex topic related to plastic pollution, as it touched upon the interaction with all the quadrants. All participants shared their comments on the responsibility issue which mainly reflected upon the consumer and producer responsibility, and the responsibilities of the fishing industry and Asian regions. The responsibility seems to be transferred between individual and collective responsibility, different generations, as well as between developed and developing regions. Some participants expressed that this was grounded in the fact that the collective have a greater impact than what an individual may feel. What came to light is that individuals have the responsibility to engage, and the collective has the responsibility to allocate efforts and resources. The findings also illustrate that individuals may have a bigger impact of change, than what is personally perceived by many.

To answer how the conceptualisations of plastic pollution affect the health and well-being of young adults in Norway, all the participants expressed a concern regarding the marine ecosystems and animal life. The findings illustrate that marine plastic pollution may be seen as a planetary boundary treat because of the toxins moving in our surroundings, that it is foreign to nature, and that it challenges nature regardless the management methods. Many participants also expressed that other parts of the world are more affected than Norway, which was grounded in the belief that there was a pollution, management, and attitude difference. However, findings indicate that Norway may be an artificially cleaner country because the transferred burden is moving the attention away from Norway. This may create well-being for the short run, but is not sustainable. Lastly, most of the participants shared a common understanding that plastic pollution had the potential to affect human health through the consumption of plastic and toxins. Yet, this was not expressed as a great concern among the participants, as they mostly expressed concern for the environmental quality and responsibility issues. Plastic pollution is, evidently, affecting the participant's well-being by posing challenges to our surroundings, as well as it creates internal and external drivers which both negatively and positively impact well-being.

6.2 Recommendations

This section presents the main recommendations that emerged from the findings:

Grant that you as an individual have an impact: In an ever-increasing globalised world, one may often feel powerless to change the system on solely own efforts. Yet, consumers and stakeholders have the potential to change the market and producer demands by using other alternatives, and to create social drivers for behavioural change by initiating cleaning missions or awareness campaigns. By granting permission to feel this individual responsibility, one has the potential to erase the transfer of responsibilities in our society. This may latent the shared responsibility of being consumers, and prospect for future behavioural change in society.

Allocate policy efforts and available resources: Norwegian policies has the potential to influence the drivers for change. By allocating the necessary exterior drivers, it can amplify the society's incentives for combating plastic pollution. This includes to strengthen national guidelines and information in the manner of making it harder to take bad consumer choices, and adequately visualise the information to reach consumers and stakeholders. The government should also enforce individual engagement availability. This includes to allocate the needed resources and information for stakeholders to easily access actions such as beach cleaning activities, increase the waste bins in public places, strengthen the handling and inform about the waste management in Norway, and prohibit unnecessary plastic items. These exterior driver could serve a dual purpose of eliminating many posed challenges of plastic pollution.

Recognize the existing drivers in society: For a community to meet the aspirations of consumers and stakeholders, socio-political systems must recognize the already existing individual drivers toward change. This includes the individual and collective motivation toward environmental quality and social change, that meets the feeling of achievement. There should be greater emphasis on encouragement instead of pressure toward change, as the first has a substantial potential to produce sustained changes in the society. To then act as role models instead of being "the devil's advocate" may be of benefit for reaching these drivers.

Acknowledge the well-being impact of plastic pollution: Studies on plastic pollution mainly approach the marine systems, while a small research body look into the impact on terrestrial systems. Firstly, by extending the research on the terrestrial systems it moves closer to human impact, which may amplify the appeal to personal aspirations and incentives. Secondly, the research agree to the fact that oceans are most affected, however, there is a need to expand the research on plastic particles and toxins that are interaction with us on a daily basis, and how these may affect human well-being in the future.

References

- Afroz, R., Rahman, A., Masud, M. M., & Akhtar, R. (2017). The knowledge, awareness, attitude and motivational analysis of plastic waste and household perspective in Malaysia. *Environmental Science and Pollution Research*, 24(3), 2304-2315. <https://doi.org/10.1007/s11356-016-7942-0>
- Arnold, H. E., Cohen, F. G., & Warner, A. (2009). Youth and Environmental Action: Perspectives of Young Environmental Leaders on Their Formative Influences. *The Journal of environmental education*, 40(3), 27-36. <https://doi.org/10.3200/JOEE.40.3.27-36>
- Attride-Stirling, J. (2001). Thematic networks: an analytic tool for qualitative research. *Qualitative research*, 1(3), 385-405.
- Azoulay, D., Villa, P., Arellano, Y., Gordon, M. F., Moon, D., Miller, K. A., & Thompson, K. (2019). *Plastic & health: the hidden costs of a plastic planet*. CIEL. Retrieved from <https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf>
- Bailey, I. (2022). Media coverage, attention cycles and the governance of plastic pollution. *Environmental Policy and governance*, 32, 1-13. <https://doi.org/10.1002/eet.1977>
- Baran, B. (2020). Plastic waste as a challenge for sustainable development and circularity in the European Union. *Ekonomia i Prawo. Economics and Law*, 19(1), 7-20.
- Barnes, S. J. (2019). Out of sight, out of mind: Plastic waste exports, psychological distance and consumer plastic purchasing. *Global Environmental Change*, 58, 101943. <https://doi.org/10.1016/j.gloenvcha.2019.101943>
- Bergstøl, I. K. (2021). *Hvorfor rydder vi marin forsøpling? (Why do we clean marine litter?)*. Retrieved from <https://www.inthesameboat.eco/2022/02/hvorforryddeplast/>
- Borja, A., White, M.P., Berdalet, E., Bock, N., Eatock, C., Kristensen, P., Leonard, A., Lloret, J., Pahl, S., Parga, M., Prieto, J.V., Wuijts, S., & Fleming, L.E. (2020). Moving Toward an Agenda on Ocean Health and Human Health in Europe. *Frontiers in Marine Science* 7:37, 1-19. <https://doi.org/10.3389/fmars.2020.00037>
- Borg, K., Curtis, J., & Lindsay, J. (2020). Social norms and plastic avoidance: Testing the theory of normative social behaviour on an environmental behaviour. *Journal of Consumer Behaviour*, 19(6), 594-607. <https://doi.org/10.1002/cb.1842>
- Boulianne, S., & Ohme, J. (2021). Pathways to environmental activism in four countries: social media, environmental concern, and political efficacy. *Journal of Youth Studies*, 24(1), 1-22. <https://doi.org/10.1080/13676261.2021.2011845>
- Braaten, H., Olsen, M., & Larssen, T. (2020, May 13th). «Plast-Elvene» i Asia spiller en nøkkelrolle i kampen mot plast i havet («the plastic-rivers» play a key role in the combat of plastic in the ocean). Retrieved from <https://forskersonen.no/forurensning-hav-og-fiske-kronikk/plast-elvene-i-asia-spiller-en-nokkelrolle-i-kampen-mot-plast-i-havet/1755828>
- Brown, B. (2005). Theory and practice of integral sustainable development. *AQAL Journal of Integral Theory and Practice*, 1(2), 1-70.
- Bullock, C., Joyce, D., & Collier, M. (2018). An exploration of the relationship between cultural ecosystem services, socio-cultural values and well-being. *Ecosystem services*, 31, 142-152. <https://doi.org/10.1016/j.ecoser.2018.02.020>
- Carlini, G., & Kleine, K. (2018). Advancing the international regulation of plastic pollution beyond the United Nations Environment Assembly resolution on marine litter and microplastics. *Review of European, Comparative & International Environmental Law*, 27(3), 234-244. <https://doi.org/10.1111/reel.12258>
- Chow, C.F., So, W.M.W., Cheung, T.Y., & Yeung, S.K.D. (2017). Plastic waste problem and education for plastic waste management. *Emerging practices in scholarship of learning and teaching in a digital era*, 44(3), 125-140. https://doi.org/10.1007/978-981-10-3344-5_8
- Clark, E., Mulgrew, K., Kannis-Dymand, L., Schaffer, V., & Hoberg, R. (2019) Theory of planned behaviour: Predicting tourists' pro-environmental intentions after a humpback whale encounter. *Journal of Sustainable Tourism*, 27(5), 649-667. <https://doi.org/10.1080/09669582.2019.1603237>

- Creswell, J. W., & Poth, C.N. (2018). *Qualitative inquiry & research design: Choosing among five approaches*. SAGE.
- Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into practice*, 39(3), 124-130.
- Da Costa, J.P., Mouneyrac, C., Costa, M., Duarte, A.C., & Rocha-Santos, T. (2020). The role of legislation, regulatory initiatives and guidelines on the control of plastic pollution. *Frontiers in Environmental Science*, 8, 104. <https://doi.org/10.3389/fenvs.2020.00104>
- Dauvergne, P. (2018a). The power of environmental norms: marine plastic pollution and the politics of microbeads. *Environmental Politics*, 27(4), 579-597. <https://doi.org/10.1080/09644016.2018.1449090>
- Dauvergne, P. (2018b). Why is the global governance of plastic failing the oceans?. *Global environmental change* 51, 22-31. <https://doi.org/10.1016/j.gloenvcha.2018.05.002>
- Davison, S. M., White, M. P., Pahl, S., Taylor, T., Fielding, K., Roberts, B. R., ... & Fleming, L. E. (2021). Public concern about, and desire for research into, the human health effects of marine plastic pollution: Results from a 15-country survey across Europe and Australia. *Global Environmental Change*, 69, 102309. <https://doi.org/10.1016/j.gloenvcha.2021.102309>
- Deshpande, P. C., Skaar, C., Brattebø, H., & Fet, A. M. (2020). Multi-criteria decision analysis (MCDA) method for assessing the sustainability of end-of-life alternatives for waste plastics: A case study of Norway. *Science of the Total Environment*, 719, 137353. <https://doi.org/10.1016/j.scitotenv.2020.137353>
- Dijkstra, H., van Beukering, P., & Brouwer, R. (2020). Business models and sustainable plastic management: A systematic review of the literature. *Journal of Cleaner Production*, 258, 120967. <https://doi.org/10.1016/j.jclepro.2020.120967>
- Figueroa, S. K. (2008). The grounded theory and the analysis of audio-visual texts. *International Journal of Social Research Methodology*, 11(1), 1-12. <https://doi.org/10.1080/13645570701605897>
- Hahn, L., Buttler, B., & Walther, E. (2021). Unpacking Plastic: Investigating Plastic Related Ambivalence. *Sustainability* 13(4), 2186. <https://doi.org/10.3390/su13042186>
- Heidbreder, L. M., Bablok, I., Drews, S., & Menzel, C. (2019). Tackling the plastic problem: A review on perceptions, behaviors, and interventions. *Science of the Total Environment*, 668, 1077-1093. <https://doi.org/10.1016/j.scitotenv.2019.02.437>
- Helliwell, J. F., Layard, R., Sachs, J., & De Neve, J.E. (2020). *World Happiness Report 2020*. New York: Sustainable Development Solutions Network. Retrieved from <https://worldhappiness.report/ed/2020/>
- Hold Norge Rent. (n.d, 28th April). Internasjonale avtaler om forsøpling (International agreements on littering). Retrieved from <https://holdnorge.no/kunnskapsartikkel/internasjonale-avtaler-om-forsopling>
- Ilyas, M., Ahmad, W., Khan, H., Yousaf, S., Khan, K., & Nazir, S. (2018). Plastic waste as a significant threat to environment—a systematic literature review. *Reviews on environmental health*, 33(4), 383-406. <https://doi.org/10.1515/reveh-2017-0035>
- Jia, L., Evans, S., & van der Linden, S. (2019). Motivating actions to mitigate plastic pollution. *Nature communications*, 10(1), 4582.
- Kedzierski, M., Frère, D., Le Maguer, G., & Bruzard, S. (2020). Why is there plastic packaging in the natural environment? Understanding the roots of our individual plastic waste management behaviours. *Science of the Total Environment*, 740, 139985. <https://doi.org/10.1016/j.scitotenv.2020.139985>
- Kenneth Bruvik (director). (2021). *Plasthavet* (The Plastic Ocean) [Audio-visual] NRK: Norway. <https://tv.nrk.no/serie/plasthavet/sesong/1/episode/3/avspiller>
- Khan, F., Ahmed, W., & Najmi, A. (2019). Understanding consumers' behavior intentions towards dealing with the plastic waste: Perspective of a developing country. *Resources, Conservation and Recycling*, 142, 49-58. <https://doi.org/10.1016/j.resconrec.2018.11.020>
- Khan, F., Ahmed, W., Najmi, A., & Younus, M. (2019). Managing plastic waste disposal by assessing consumers' recycling behavior: the case of a densely populated developing country. *Environmental Science and Pollution Research*, 26(32), 33054-33066.

- Khan, M. S., Saengon, P., Alganad, A. M. N., Chongcharoen, D., & Farrukh, M. (2020). Consumer green behaviour: An approach towards environmental sustainability. *Sustainable Development*, 28(5), 1168-1180. <https://doi.org/10.1002/sd.2066>
- Kvamme, O. (2020, April 20th). UiB ryddet fire tonn plast (UiB cleaned four tons of plastic). Retrieved from <https://www.uib.no/aktuelt/139370/uib-ryddet-fire-tonn-plast>
- Lazarevic, D., Aoustin, E., Buclet, N., & Brandt, N. (2010). Plastic waste management in the context of a European recycling society: Comparing results and uncertainties in a life cycle perspective. *Resources, Conservation and Recycling*, 55(2), 246-259. <https://doi.org/10.1016/j.resconrec.2010.09.014>
- Li, P., Wang, X., Su, M., Zou, X., Duan, L., & Zhang, H. (2020). Characteristics of Plastic Pollution in the Environment: A Review. *Bulletin of Environmental Contamination and Toxicology* 107(4), 577-584.
- Lorenzini, J., Monsch, G., & Rosset, J. (2021). Challenging Climate Strikers' Youthfulness: The Evolution of the Generational Gap in Environmental Attitudes Since 1999. *Frontiers in Political Science*, 3(40). <https://doi.org/10.3389/fpos.2021.633563>
- Lundy, T. (2010). A paradigm to guide health promotion into the 21 st century: the integral idea whose time has come. *Global health promotion*, 17(3), 44-53.
- Males, J., & Aelst, P.V. (2022). Did the Blue Planet set the Agenda for Plastic Pollution? An Explorative Study on the Influence of a Documentary on the Public, Media and Political Agendas. *Environmental Communication*, 15(1), 40-54. <https://doi.org/10.1080/17524032.2020.1780458>
- Marazzi, L., Loiseau, S., Anderson, L. G., Roccliffe, S., & Winton, D. J. (2020). Consumer-based actions to reduce plastic pollution in rivers: A multi-criteria decision analysis approach. *PloS one*, 15(8), e0236410. <https://doi.org/10.1371/journal.pone.0236410>
- McCallum, W. (2018). *How to Give Up Plastic: A Conscious Guide to Changing the World, One Plastic Bottle at a Time*: Penguin UK.
- Milios, L., Christensen, L. H., McKinnon, D., Christensen, C., Rasch, M. K., & Eriksen, M. H. (2018). Plastic recycling in the Nordics: A value chain market analysis. *Waste Management*, 76, 180-189. <https://doi.org/10.1016/j.wasman.2018.03.034>
- Mintz, K. K., Henn, L., Park, J., & Kurman, J. (2019). What predicts household waste management behaviors? Culture and type of behavior as moderators. *Resources, Conservation and Recycling*, 145, 11-18. <https://doi.org/10.1016/j.resconrec.2019.01.045>
- Mørtvedt, M.A. (2020, May 23rd). Plaster du sorterer riktig blir ofte brent (The plastic you sort at source often gets incinerated). Retrieved from <https://www.nrk.no/livsstil/plaster-du-kildesorterer-riktig-blir-ofte-brent-1.15072875>
- Nairn, K. (2019). Learning from young people engaged in climate activism: The potential of collectivizing despair and hope. *Young*, 27(5), 435-450. <https://doi.org/10.1177/0271103308818817603>
- Nielsen, T. D., Hasselbalch, J., Holmberg, K., & Strippel, J. (2020). Politics and the plastic crisis: A review throughout the plastic life cycle. *Wiley Interdisciplinary Reviews: Energy and Environment*, 9(1), e360. <https://doi.org/10.1002/wene.360>
- Neuman, W.L. (2011). The Meanings of Methodology. *Social research methods: Qualitative and quantitative approaches* (7 ed.) 90-122. Springer.
- Norwegian Environment Agency. (2021, May 31st). Plastprodukter: Forbud og merkekrav for engangsplast (Plastic products: Prohibition and branding requirements for single use plastic). <https://www.miljodirektoratet.no/ansvarsomrader/kjemikalier/produktforskriften/plastdirektivet/>
- Norwegian Ministry of climate and environment. (2021, May 10th). Marin forsøpling og mikroplast –plastforurensning (Marine litter and micro plastic – plastic pollution). <https://www.regjeringen.no/no/tema/klima-og-miljo/forurensning/innsiktsartikler-forurensning/marin-forsopling-og-mikroplast/id2339872/>
- Norwegian Retailers' Environment Fund. (2020, March 20th). Fakta og kunnskap om plast (Facts and knowledge about plastic). Retrieved from <https://handelensmiljofond.no/fakta-og-kunnskap-om-plast>
- NRK (Director). (2020). *Et hav av muligheter - Tv-aksjonen 2020* (An ocean of opportunities

- the tv-auction 2020) [Audio-visual]. NRK: Norway.
<https://tv.nrk.no/serie/tv-aksjonen/2020/MUHU27000120/avspiller>
- Nunes, A. R., Lee, K., & O'Riordan, T. (2016). The importance of an integrating framework for achieving the Sustainable Development Goals: the example of health and well-being. *BMJ global health*, 1(3), e000068.
<http://dx.doi.org/10.1136/bmjgh-2016-000068>
- Olsen, J., Nogueira, L.A., Normann, A.K., Vangelsten, B.V., & Bay-Larsen, I. (2020). Marine litter: Institutionalization of attitudes and practices among Fishers in Northern Norway. *Marine Policy* 121, 104211. <https://doi.org/10.1016/j.marpol.2020.104211>
- Pahlevi, M. R., & Suhartanto, D. (2020). The integrated model of green loyalty: Evidence from eco-friendly plastic products. *Journal of Cleaner Production*, 257, 120844.
<https://doi.org/10.1016/j.jclepro.2020.120844>
- Papaoikonomou, E., Cascon-Pereira, R., & Ryan, G. (2016). Constructing and communicating an ethical consumer identity: A Social Identity Approach. *Journal of Consumer Culture*, 16(1), 209-231. <https://doi.org/10.1177%2F1469540514521080>
- Permana, R., Rizal, A., & Hasan, Z. (2020). Plastic Consumption in Group of Teens and Young Adults from Pangandaran District, Indonesia: A Glimpse of Environmental Awareness among the Locals outside Big Cities. *Asian Journal of Advanced Research and Reports*, 12(2), 1-9.
- Prata, J. C., Silva, A. L. P., Da Costa, J. P., Mouneyrac, C., Walker, T. R., Duarte, A. C., & Rocha-Santos, T. (2019). Solutions and integrated strategies for the control and mitigation of plastic and microplastic pollution. *International journal of environmental research and public health*, 16(13), 2411. <https://doi.org/10.3390/ijerph16132411>
- Ritchie, H., & Roser, M. (2022, May 18th). Plastic Pollution. Retrieved from <https://ourworldindata.org/plastic-pollution>
- Rogers, D.S., Duraiappah, A.K., Antons, D.C., Munoz, P., Bai, X., Fragkias, M., & Gutscher, H. (2012). A vision for human well-being: transition to social sustainability. *Current opinions in environmental sustainability*, 4(1), 61-73. <https://doi.org/10.1016/j.cosust.2012.01.013>
- Sabherwal, A., Ballew, M. T., Liden, S., Gustafson, A., Goldberg, M. H., Maibach, E. W., ... & Leiserowitz, A. (2021). The Greta Thunberg Effect: Familiarity with Greta Thunberg predicts intentions to engage in climate activism in the United States. *Journal of Applied Social Psychology*, 51(4), 321-333. <https://doi.org/10.1111/jasp.12737>
- Shaw, I., & Holland, S. (2017). Ethics in Qualitative Research. *Doing Qualitative Research in Social Work*, 1-17.
- Sheavly, S.B., & Register, K.M. (2007). Marine debris & plastics: environmental concerns, sources, impacts and solutions. *Journal of Polymers and the Environment*, 15(4), 301- 305.
- Shin, S.K., Um, N., Kim, Y.J., Cho, N.H., & Jeon, T.W. (2020). New Policy Framework with Plastic Waste Control Plan for Effective Plastic Waste Management. *Sustainability*, 12(15), 6049. <https://doi.org/10.3390/su12156049>
- Situmorang, R. O. P., Liang, T.C., & Chang, S.C. (2020). The Difference of Knowledge and Behavior of College Students on Plastic Waste Problems. *Sustainability*, 12(19), 7851. <https://doi.org/10.3390/su12197851>
- Skovdal, M., & Cornish, F. (2015). *Qualitative research for development: a guide for Practitioners*. Practical Action Publishing.
- Soares, J., Miguel, I., Venâncio, C., Lopes, I., & Oliveira, M. (2021). Public views on plastic pollution: Knowledge, perceived impacts, and pro-environmental behaviours. *Journal of Hazardous Materials*, 412, 125227. <https://doi.org/10.1016/j.jhazmat.2021.125227>
- The Norwegian Departments. (2021). *Noregs plaststrategi (The Norwegian plastic strategy)*. <https://www.regjeringen.no/contentassets/ccb7238072134e74a23c9eb3d2f4908a/nn-no/pdfs/noregs-plaststrategi.pdf>
- Tu'itahi, S., Stoneham, M., Ratima, M., Simpson, T., Signal, L., & Puloka, V. (2019). Timely and significant call for planetary health promotion. *Global health promotion*, 26(4), 100-101. <https://doi.org/10.1177%2F1757975919888174>

- Turner, R. W. (2021). Plastic Pollution in the Ocean: The Impacts of Visual Information and Text on Beliefs, Attitudes, and Expected Behaviours. *IOP Conference Series: Earth and Environmental Science*, 690(1), 012030.
- United Nations. (n.d, March 26th). The 17 Goals. Retrieved from <https://sdgs.un.org/goals>
- Van Rensburg, M. L., S'phumelele, L. N., & Dube, T. (2020). The 'plastic waste era'; social perceptions towards single-use plastic consumption and impacts on the marine environment in Durban, South Africa. *Applied Geography*, 114, 102132. <https://doi.org/10.1016/j.apgeog.2019.102132>
- Villarubia-Gómez, P., Cornell, S.E., & Fabres, J. (2018). Marine plastic pollution as a planetary boundary threat – the drifting piece in the sustainability puzzle. *Marine policy* 96, 213-220. <https://doi.org/10.1016/j.marpol.2017.11.035>
- Viscusi, W. K., Huber, J., & Bell, J. (2011). Promoting recycling: private values, social norms, and economic incentives. *American Economic Review*, 101(3), 65-70.
- Wallis, H., & Loy, L. S. (2021). What drives pro-environmental activism of young people? A survey study on the Fridays For Future movement. *Journal of Environmental Psychology*, 74, 101581. <https://doi.org/10.1016/j.jenvp.2021.101581>
- Wang, W., Mo, T., & Wang, Y. (2022). Better self and better us: Exploring the individual and collective motivations for Chinas Generation Z consumers to reduce plastic pollution. *Resources, Conservation & Recycling*, 179, 106111. <https://doi.org/10.1016/j.resconrec.2021.106111>
- Waring, R.H., Harris, R.M., & Mitchell, S.C. (2018). Plastic contamination of the food chain: A threat to human health?. *Maturitas* 115, 64-68. <https://doi.org/10.1016/j.maturitas.2018.06.010>
- White, S. C. (2010). Analysing wellbeing: a framework for development practice. *Development in practice*, 20(2), 158-172. <https://doi.org/10.1080/09614520903564199>
- Wilber, K. (2005). Introduction to integral theory and practice. *AQAL: Journal of Integral Theory and Practice*, 1(1), 1-38.
- Williams, A.T & Rangel-Buitrago, N. (2022). The past, present, and future of plastic pollution. *Marine Pollution Bulletin*, 176, 113429. <https://doi.org/10.1016/j.marpolbul.2022.113429>
- Williams, M., Gower, R., Green, J., Whitebread, E., Lenkiewicz, Z., & Schröder, P. (2019). *No time to waste: Tackling the plastic pollution crisis before it's too late*. Tearfund.
- Willis, K.A., Hardesty, B.D., Wilcox, C. (2021). State and local pressures drive plastic pollution compliance strategies. *Journal of environmental management*, 287, 112281. <https://doi.org/10.1016/j.jenvman.2021.112281>
- Windsor, F.M., Durance, I., Horton, A.A., Thompson, R.C., Tyler, C.R., & Ormerod, S.J. (2018). A catchment-scale perspective of plastic pollution. *Global Change Biology*, 25(4), 1207-1221. <https://doi.org/10.1111/gcb.14572>
- World Health Organization (1986). *Ottawa Charter for Health Promotion*. Retrieved from https://www.euro.who.int/_data/assets/pdf_file/0004/129532/Ottawa_Charter.pdf
- Wray-Lake, L., Flanagan, C. A., & Osgood, D. W. (2010). Examining trends in adolescent environmental attitudes, beliefs, and behaviors across three decades. *Environment and behavior*, 42(1), 61-85. <https://doi.org/10.1177%2F0013916509335163>
- Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European journal of education*, 48(2), 311-325.

Appendices

Appendix A: Informed consent (English version)

Requesting participants for a research project about plastic and plastic pollution

My name is Ina Kristine Bergstøl. I study global development at the University of Bergen. This is a request for you to participate in a research study with the purpose of increasing the knowledge about what effect plastic pollution has on health and well-being among young adults. In this writing, you will find information about the goals for the project, and what the participation entails for you.

Purpose

The research project is a master thesis with the purpose of study how plastic pollution affects, or is affected by motivations, cultural values, and environmental-friendly behaviour. This is a field of interest because this knowledge can enable changes in the perception and behaviour related to plastic and plastic pollution. The main themes the research project will approach, is:

- Experiences and meanings related to plastic pollution
- Strategies and action related to plastic pollution
- How cultural norms and values affect related experienced and actions
- How political and systemic structures affect related experiences and actions

Why are you asked to participate?

You are requested to participate because you are between 24-28 years old and meet the following criteria:

- You have a background in or actively engaged in solutions, management or environmental- friendly behaviour related to plastic and plastic pollution. OR
- You are passive to or not so engaged in solutions, management or environmental-friendly behaviour related to plastic and plastic pollution.

What does it entail for you to participate?

If you choose to participate, it entails to participate in an interview for about 60 minutes. The interview contains questions about your motivations and strategies related to the theme, and if culture and systemic structures affect behaviour related to plastic and plastic pollution. I will take notes and record for enabling to analyse on a later point.

It is voluntary to participate

It is voluntary to participate in the project. If you chose to participate, you can at any time withdraw your consent without stating a reason. Then, all your personal information will be deleted, and it will not be any negative consequences for you if you do not want to participate or later on choose to withdraw.

Your privacy – how we store and use your personal information

Your personal information will only be used to the purpose informed about in this writing. The information is treated confidential and in compliance with the privacy policy, and will not be shared with others that are not directly involved in this study (Ina Bergstøl and Marguerite Daniel).

Personal data will be stored in UiB's SAFE system – secure access to research data and e-infrastructure, and your name will be replaced with a code separated from the data. Recording will be deleted after the analysis.

What happens with the information when we end the research project?

The information is anonymised when the project ends, and as planned this will be the 19th of May 2022. You will not be recognizable in the publication.

What give us the right to treat personal information about you?

Your information will be treated based on your consent.

On behalf of the University of Bergen, Norsk senter for forskningsdata AS (NSD) have considered the treatment of personal information in this project in compliance with the privacy regulations.

Your rights

As long as you can be identified in the material, you have the right to:

- Insight in which personal information we treat, and to get a copy of this information
- Correct the personal information which is wrong or misleading

- Erase personal information about you
- Send a complain to Datatilsynet about the treatment of this personal information

If you have any questions, or wish to know more or make use of your rights, contact:

- Student: Ina Kristine Bergstøl | Ina.bergstol@outlook.com | 954 70 685
- Supervisor: Marguerite Lorraine Daniel | Marguerite.daniel@uib.no | 555 83 220
- UiB's privacy representative: Janecke Helene Veim | personvernombud@uib.no

If you have any question regarding NSD's assessment of the project, contact:

- NSD – Norsk senter for forskningsdata AS | personverntjenester@nsd.no | 555 82 117

Consent

- I have been informed about the project, and wish to participate in an interview

I give consent for my personal information to get treated until the project has ended.

(Signed by project participant, date)

Appendix B: Informed consent (Norwegian version)

Forespørsel om deltakelse i forskningsprosjekt om plast og plastforurensning

Mitt navn er Ina Kristine Bergstøl. Jeg studerer master i global utvikling ved Universitetet i Bergen. Dette er et spørsmål til deg om å delta i et forskningsprosjekt med formålet å øke kunnskapen rundt plastforurensningens effekt på helse og velvære blant unge voksne. I dette skrevet er det informasjon om målene for prosjektet og hva deltakelsen vil innebære for deg.

Formål

Forskningsprosjektet er en masteroppgave med hensikt å studere hvordan plastforurensning påvirker, eller blir påvirket av motivasjoner, kulturelle verdier og miljøvennlig atferd i oss mennesker. Dette er et interessefelt fordi denne kunnskapen kan muliggjøre endringer i oppfattelsen og atferden relatert til plast og plastforurensning.

Hovedtemaene forskningsprosjektet skal tilnærme er:

- Opplevelser og meninger relatert til plastforurensning
- Strategier og handlinger relatert til plastforurensning
- Hvordan kulturelle normer og verdier påvirker relaterte opplevelser og handlinger
- Hvordan politiske- og systemiske strukturer påvirker relaterte opplevelser og handlinger

Hvorfor får du spørsmål om å delta?

Du har fått spørsmål om å delta fordi du er mellom 24 og 28 år og møter følgende kriterier:

- Du har bakgrunn i eller er aktiv engasjert i løsninger, håndtering eller miljøvennlig atferd angående plast og plastforurensning ELLER
- Du er avholden eller ikke så engasjert i løsninger, håndteringer eller miljøvennlig atferd angående plast og plastforurensning

Hva innebærer det for deg å delta?

Hvis du velger å delta i prosjektet, innebærer det å stille til et intervju på om lag 60 minutter. Intervjuet inneholder spørsmål om dine motivasjoner og strategier relatert til temaet, og om kultur og systemiske strukturer påvirker atferd relatert til plast og plastforurensning. Jeg vil notere og ta opptak av samtalen for å kunne analysere på et senere tidspunkt.

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Opplysningene om deg vil bare bli brukt til formålene informert om i dette skrevet. Opplysningene blir behandlet konfidensielt og i samsvar med personvernreglementet, og vil ikke bli delt med andre som ikke er direkte involvert i dette studiet (dvs. Ina Bergstøl og Marguerite Daniel).

Personlig data vil bli lagret i UiBs SAFE system – sikker adgang til forskningsdata og e-infrastruktur, og navn vil bli erstattet med en kode adskilt fra øvrige data. Lydopptak vil bli slettet etter analysering.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?

Opplysningene anonymiseres når prosjektet avsluttes, noe som etter planen er 19 mai 2022.

Du vil ikke kunne bli gjenkjennbar i publikasjon.

Hva gir oss rett til å behandle personopplysninger om deg?

Opplysninger om deg vil bli behandlet basert på ditt samtykke.

På oppdrag fra Universitetet i Bergen har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene
- å få rettet opplysninger om deg som er feil eller misvisende
- å få slettet personopplysninger om deg
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:

- Student: Ina Kristine Bergstøl | ina.bergstol@outlook.com | 954 70 685
- Veileder: Marguerite Lorraine Daniel | Marguerite.daniel@uib.no | 555 83 220
- UiBs personvernombud: Janecke Helene Veim | personvernombud@uib.no

Hvis du har spørsmål knyttet til NSD sin vurdering av prosjektet, kan du ta kontakt med:

- NSD – Norsk senter for forskningsdata AS | personverntjenester@nsd.no | 555 82 117

Samtykke

- Jeg har blitt informert om prosjekter, og er villig til å delta i et intervju

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

(Signert av prosjektdeltaker, dato)

Appendix C: Audio-visual observation guide

| Impressions | Implicit expressions | Emerging topics | Quadrants |
|---|---|--|--------------------------------------|
| Impressionistic themes occurring during observation | Expressions of themes implicit in the audio-visuals | Topics that emerged from the implicitly expressed themes | Which quadrant the topic connects to |
| | | | |
| | | | |

Appendix D: Interview guide (English version)

| |
|---|
| Section 1: Introduction |
| <ul style="list-style-type: none">○ About me About the project Informed consent○ Can you tell me a little bit about yourself and your background? |
| Section 2: Interior Individual – experiences, meanings and motivation |
| <ul style="list-style-type: none">○ How is your relationship to the environment?○ How would you say plastic affects you? |
| Section 3: Exterior Individual – strategies and actions |
| <ul style="list-style-type: none">○ Which strategies and activities related to plastic pollution do you engage in?○ What makes you choose environmental-friendly alternatives and measures?○ How would you say plastic pollution impact health? |
| Section 4: Interior Collective – cultural norms and values |
| <ul style="list-style-type: none">○ How do you feel the society affect you and your choices regarding plastic?○ How do younger and elder generations react to plastic pollution?○ Did you watch the TV-auction 2020? If yes, what did you think?○ Have you seen documentaries related to the theme? If yes, what did you feel? |
| Section 5: Exterior Collective – political and systemic structures |
| <ul style="list-style-type: none">○ How do you think plastic waste is managed?○ Which ecosystem do you think are most affected by plastic production/pollution? |
| Section 6: Ending |
| <ul style="list-style-type: none">○ What would have done it easier or made you more engaged and active?○ Do you have any other thoughts related to these themes that you want to add? |

Appendix E: Interview guide (Norwegian version)

| |
|--|
| Seksjon 1: Introduksjon |
| <ul style="list-style-type: none">○ Om meg selv Om prosjektet Informert samtykke○ Kan du fortelle kort om deg selv og din bakgrunn? |
| Seksjon 2: Indre Individ – opplevelser, meninger og motivasjon |
| <ul style="list-style-type: none">○ Hvordan er forholdet ditt til miljøet?○ Hvordan vil du si at plast påvirker deg? |
| Seksjon 3: Ytre Individ – strategier og handlinger |
| <ul style="list-style-type: none">○ Hvilke strategier og aktiviteter engasjerer du deg i relatert til plastforurensning?○ Hva får deg til å velge miljøvennlige alternativer og tiltak eller omvendt?○ Hvordan vil du si plastforurensning påvirker helse? |
| Seksjon 4: Indre Kollektiv – kulturelle normer og verdier |
| <ul style="list-style-type: none">○ Hvordan føler du at samfunnet påvirker deg og dine valg relatert til plast?○ Hvordan reagerer unge og eldre generasjoner på plastforurensning?○ Fulgte du Tv-aksjonen 2020? Hvis ja, hva syntes du?○ Har du sett dokumentarer relatert til temaet? Hvis ja, hva følte du? |
| Seksjon 5: Ytre Kollektiv – politiske og systematiske strukturer |
| <ul style="list-style-type: none">○ Hvordan tror du plastavfall blir håndtert?○ Hvilke økosystemer tror du blir mest påvirket av plastproduksjon og forurensning? |
| Seksjon 6: Avslutning |
| <ul style="list-style-type: none">○ Hva ville gjort det enklere eller fått deg til å bli mere engasjer og aktiv?○ Har du noen andre tanker relatert til disse temaene du gjerne vil ta opp? |

Appendix F: Ethical approval NSD

Vurdering

Referansenummer
889657

Prosjekttittel

Health and well-being in a plastic polluted environment: exploring the meanings, experiences and management of plastic within the Integral perspective

Behandlingsansvarlig institusjon

Universitetet i Bergen / Det psykologiske fakultet / Hemil-senteret

Prosjektperiode

01.08.2021 - 22.05.2022

[Meldeskjema](#) 

| Dato | Type |
|------------|------------|
| 06.07.2021 | Med vilkår |

Kommentar

NSD har vurdert at personvernulempen i denne studien er lav. Du har derfor fått en forenklet vurdering med vilkår.

HVA MÅ DU GJØRE VIDERE?

Du har et selvstendig ansvar for å følge vilkårene under og sette deg inn i veiledningen i denne vurderingen. Når du har gjort dette kan du gå i gang med datainnsamlingen din.

Vurdering

Referansenummer
889657

Prosjekttittel

Health and well-being in a plastic polluted environment: exploring the meanings, experiences and management of plastic within the Integral perspective

Behandlingsansvarlig institusjon

Universitetet i Bergen / Det psykologiske fakultet / Hemil-senteret

Prosjektperiode

01.08.2021 - 22.05.2022

[Meldeskjema](#) 

| Dato | Type |
|------------|------------|
| 02.08.2021 | Med vilkår |

Kommentar

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