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Nudging – a critical analysis of nudging as climate change adaptation strategy

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Declaration

I, Maria Rønning Ramsdal, declare that this thesis is a result of my research investigations and findings. Sources of information other than my own have been acknowledged and a reference list has been appended. This work has not been previously submitted to any other university for award of any type of academic degree.

Signature.....*Maria Ramsdal*..... Date: 15th of January 2023.

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Abstract

The purpose of this study was to gain insight into the challenges with using nudge as a climate change adaptation strategy. This was done by applying the theoretical concepts of adaptation as a socio-political process, more precisely by focusing on authority, knowledge, and subjectivity. The study is a qualitative approach, based on a document analysis of selected literature discussing nudge and behavioral public policy generically and/or related to climate change/sustainability issues.

Relating to authority, this study found that nudge strategies are extensively spread globally but are predominantly found in western English-speaking countries. Especially western formal organizations, both governments and international (development/aid) organizations, have initiated nudge projects globally. As policy tool nudge should be considered as a soft governmental steering tool to change behavior, and must be combined with other stronger, more regulatory instruments. Relating to the concept of knowledge, the inherent choice architecture in nudge theory and practice and the ideal of scientific evidence-based knowledge was criticized for being a too limited approach to address larger societal problems. In regard to subjectivities, this study found substantial ethical issues that relate to the hidden and potentially manipulative features of nudges. This study also indicate that the ethical issues represent a severe democratic problem due to nudging being contradictory to empowerment and participation by individuals.

The challenges with using nudge as a climate change adaptation strategy were identified at two levels: individual and systemic. At individual level, particularly ethical issues are considered to be most prominent. At systemic level, nudge strategies are discussed as a soft governmental policy tool, considered as an inadequate or a modest contribution to address the complexity and seriousness of climate change problems.

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1. Introduction

Climate change is often described as one of the greatest challenges for humanity (Leichenko & O'Brien, 2019). This is emphasized by the United Nations's Sustainable Development Goals (SDGs) and the Intergovernmental Panel on Climate Change (IPCC). It has become increasingly more important to mitigate emissions, whilst also adapting to climate change. At the same time, it is important to understand the structures in which mitigation and adaptation strategies take place. According to Eriksen et al. (2015a, p. 1) transformations of different kinds need to take place for changes to happen, "not only in energy, food, water and urban systems, but also in social systems and structures, and in development pathways". They argue that much of adaptation (and mitigation) has been within the 'development-as-usual' paradigm, which do not necessarily address the underlying causes of vulnerabilities, and as such can be part of redistributing vulnerabilities – or creating new ones.

Facing these climate change challenges, both at individual level and at systemic level, has become increasingly more important. One of the bigger issues is how to approach the problem in order to have effective impacts in relation to the challenges with climate change. There are different approaches to this, with some going for behavioral change in individuals and some going for political structural changes. One of these responses has been nudging. Nudging is a tool that is used to change behavior and give people a 'push' to make decisions in a predictable way, i.e., by making choices easy and obvious (Thaler & Sunstein, 2008; Leichenko & O'Brien, 2019). This approach first became popular when it was introduced by Thaler and Sunstein in their book *Nudge: Improving Decisions About Health, Wealth and Happiness* from 2008. Since then, it has become a favored approach for behavior change, also to address climate change. This tool has not only been incorporated at individual levels, but governments have also applied this approach at a more systemic level, i.e., the British Cameron government making a unit for nudge strategies. Thaler & Sunstein (2008) introduce what they call *choice architecture*, which is the situation where choices are made. At the core of nudging is how the choice architecture is designed. Thaler & Sunstein (2008) assume that there will be a scientificization of the knowledge base for the design of choice architecture.

1.1 Problem statement

Nudge is an ambiguous concept as there is disagreement on whether it is an adequate and efficient approach to address climate change problems or not. On one side, those who are

promoting nudges argue that it is an innovation with significant importance to change behavior in regard to climate change worldwide. Those who are critical to the nudge approach argue that it is a problematic way of steering people's behavior, and/or is a fad in line with many other steering concepts.

The goal of this thesis is to gain insights into the challenges with using nudge as a climate change adaptation strategy. To do this, I will especially analyze the knowledge perspectives and scientific approaches as characteristics of nudging when applied to climate change issues. Nudging derives from behavioral economics and psychology, which is based on steering people to make a 'correct' decision. As the choice architecture – that is a central part in nudging – is constructed, I find it interesting to problematize the authority and knowledge perspectives behind it, and how different subjectivities emerges from it, but also how they can object to nudging and the structures around it.

1.2 Objectives and research questions

This thesis will be a critical analysis of nudging as a climate change adaptation strategy. To do this I find it important to address adaption as a social and political process, where underlying social and political structures shape power relations, vulnerabilities, and knowledges. In accordance with Leichenko & O'Brien (2019) I consider nudging to be an adaptation (and mitigation) strategy. To analyze this, I will use theories of adaptation as a socio-political process. I find, Eriksen et al.'s (2015b, p. 529) theorization of the politics of adaptations especially relevant for this analysis. They propose that adaptation processes can “constitute as well as contest, authority, subjectivity, and knowledge” which can create space for adaptation to be transformational.

Based on this, my main research question is the following:

What are challenges with using nudging as a strategy for climate change adaptation?

To answer this research question, the following sub-questions are given:

1. *Who has legitimacy to design nudging strategies ('authority')?*
2. *Which knowledge base is applied when choice architecture is designed ('knowledge')?*
3. *What are challenges for different target groups when nudge strategies are introduced ('subjectivities')?*

1.3 Structure of the thesis

To answer these research questions, I have structured my thesis in this way. In the following chapter, the background is provided, where I first introduce the concept of sustainable development and how it is a contested term where social and natural sciences have different takes on sustainable development. Here, a linkage between sustainable development and climate change is made. Further, I introduce nudging as a behavioral change approach, in accordance with how Thaler & Sunstein (2008) first introduced it. Chapter 3 contains the theoretical concepts, which is divided in four: 1) adaptation is introduced and its linkages with different discourses of climate change. I explain how adaptation have often been part of the mainstream development agenda. 2) adaptation and vulnerability linkages are explained, how adaptation ('as usual') can reinforce, redistribute, or create new vulnerabilities. 3) I then explain how adaptation needs to be seen as a socio-political process to be able to understand how vulnerabilities are shaped. Here, the theorization of the politics of adaptations – authority, knowledge, and subjectivities – are introduced and explained. 4) the last section describe how I am going to use the theories in my analysis. Chapter 4 outline the methodological and research design where I introduce the literature I have analyzed, how I sampled them, which methods I have used in collecting the data, and how I analyzed them. Here, I also assess limitations and the trustworthiness of the research. I have divided chapter 5 – the analysis chapter – based on the research questions, where I first discuss challenges related to nudging in relation to the three concepts in Eriksen et al.'s (2015b) model (see Figure 1) separately, and then a more general discussion based on the theories I have presented. Lastly, the final chapter contains concluding remarks, based on the analysis and discussion.

2. Thematic background

2.1 Sustainable development and climate change

As climate change is affecting people all over the world in various ways, it is one of the biggest challenges for sustainable development. Sustainability is a concept with many different definitions, but most often it is referred to the World Commission on Environment and Development (WCED) definition of sustainable development from 1987: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). Following this, in 1992 at the Rio Summit there was an agreement for academia to engage in and address development and environmental problems. After this, sustainable development “was recognized as the main direction of development for the twenty first century” (Kudo & Mino, 2020, p. 4). However, it has also been subject to criticisms, such as being “a vague policy term”, “malleable to suit any interest”, and for trying to cover up politics that support the business-as-usual and the status quo (Eriksen et al., 2011, p. 9).

Since its origination, contestations between natural and social sciences’ takes on sustainable development is very much present (Kudo & Mino, 2020; Kagan & Burton, 2017; Persson et al., 2018). According to Jerneck & Olsson (2020) one of the main barriers for integrating knowledges from different scientific disciplines is the differences in ontology and epistemology. Brondizio et al. (2016, p. 321) maintain that the (often strict) dualisms between natural and social sciences have reinforcing effects on the differences between them and makes it difficult to advance “understanding of inter-dependencies of human–environment interactions”. The natural sciences usually emphasize the biophysical systems, while social sciences highlight the social, economic, and political dimensions that create unsustainable developments (Brondizio et al., 2016; Leichenko & O'Brien, 2019). Kagan & Burton (2017) argue that within sustainability research the environmental challenges at a biophysical level are often seen as superior to the social, which often are degraded to implementation challenges. This dualism exists also in climate change research, i.e., Chakrabarty & Sherpa (2021) criticize the IPCC for having different functional and organizational biases, including a bias where natural sciences are favored over social sciences.

Sustainability science emerged as an integrative and interdisciplinary academic field, that tries to combine social science, natural science, economics, ecology, technological studies, governance dynamics, among other disciplines in sustainability research (Kudo & Mino, 2020;

Jerneck & Olsson, 2020; Ives et al., 2021). According to Kudo & Mino (2020, p. 4) sustainability science addresses complex structures and challenges within the dynamic nature-society system, which “exists across multiple spaces, times, and scales from local to global”. Examples of these complex challenges are “climate change, biodiversity loss, deforestation, rapid urbanization, poverty and hunger, epidemics, and natural disaster management” (Kudo & Mino, 2020, p. 4). Jerneck & Olsson (2020) argue for scientific pluralism – the process of combining different theories, methods, and questions to address different problems – when looking into complex and comprehensive contexts and challenges, such as sustainable development or climate change. They further emphasize that scientific pluralism, in comparison to scientific unification – where one theory, method, or discipline dominates another – can have value that goes beyond the scientific, such as sustaining cultural, ecological, and social diversity (here, e.g., indigenous knowledge might be given space).

Nightingale et al. (2020) take this a step further and argue for ontological pluralism, which seeks to change the way scholars think about scientific methods, such as reducing problems to observable phenomenon, and to understand how the nature of knowledges are fundamentally political. This way different knowledges, worldviews, values, and social relations will shape the way sustainable development of different kinds – i.e., adapting to climate change – takes place and can be transformational. According to Nightingale et al. (2020, p. 346) applying ontological plurality “makes framings more accountable, transparent and open to scrutiny from other ways of knowing”. While Ives et al. (2020) argue that ‘inner worlds’ – our emotions, thoughts, identities, and beliefs – should be incorporated in sustainability science to fully understand the roots of sustainable challenges and might introduce other ways of looking at solutions for sustainable development.

According to Hansmann et al. (2012) the sustainable development definition entails both environment and natural resource protection, while taking considerations to social and economic welfare. As such, the concept of sustainability integrates three core dimensions, economic, social, and environmental (Hansmann et al., 2012; Kagan & Burton, 2017). The concept of sustainability has evolved since first introduced in 1987 (Hansmann, et al., 2012). For instance, the transitioning from the Millenium Development Goals (MDGs) to the Sustainable Development Goals (SDGs) is one example of this evolvment. The MDGs was a set of worldwide social priorities that put global focus on development (Sachs, 2012), however with more emphasis on the global south (Kagan & Burton, 2017). While the SDGs presented a set of wider goals – 17 goal and 169 sub-targets – that attempt to link the economic,

environmental, and social aspects to development (Swain, 2017; Sachs, 2012; Kagan & Burton, 2017). They entail a broad span of ambitious goals, ranging from poverty to urban development to marine life (Swain, 2017). These goals are now considered a “urgent call for action by all countries – developed and developing – in a global partnership” (United Nations, n.d.). However, finding ways to balance these aspects is often difficult as they relate to different, and sometimes, contradicting values (Kagan & Burton, 2017; Hansmann et al., 2012).

Kagan & Burton (2017) argue that there are impossible contradictions within the SDGs, because (economic) growth is seen as the main driver for development but the SDGs “fails to put growth within environmental limits” (p. 287). This inconsistency is also emphasized by Swain (2017) who states that economic growth is based on exhausting natural resources and deterioration of environmental systems. The SDGs have also been heavily criticized; where proponents argue that the SDGs captures the complexity of development, while the critics claim the broad span of the goals are at “odds with the need to prioritize” (Swain, 2017, p. 342). When inspecting which of the three pillars that will be most affecting for achieving sustainable development, Swain (2017) find that the developed countries should focus on social and environmental policies, while the developing countries should focus on economic and social policies. However, Hansmann et al. (2012) emphasize the importance of finding positive ways of balancing them, especially for sustainable decision making (Hansmann et al., 2012). Glavič & Lukman (2007) state that the level of political will have to be considered when implementing sustainability strategies.

Climate change poses as one of the greatest risks for sustainable development (Kagan & Burton, 2017; Eriksen et al., 2015a). Climate change refers to the changes in average climate conditions and the changes in the speed and intensity of extreme weather events, risings temperatures, floods, storms, rainfall, wildfires, and melting of icebergs, caused by human activities. These changes in climate are both short-term and long-term, and will impact our future livelihoods, but also existing ones (Leichenko & O’Brien, 2019; Eriksen et al., 2015a). For the most part, there is a consensus on the urgency of the climate change problem. Many reports and environmental researchers show the tremendous and horrible effects of rising global emissions and the rise of global temperatures of only 1,5 degrees (i.e., IPCC). According to Eriksen et al. (2015a) the climate change problem is driven by intensive growth in energy and resource use which are key drivers for greenhouse gas (GHG) emissions. These trajectories are closely related to existing inequities, that are unevenly distributed across the globe (O’Brien & Leichenko, 2000; Leichenko & O’Brien, 2019; Eriksen et al., 2015a). Leichenko & O’Brien

(2019) state that climate change will have enormous effects on the vulnerability of people who are affected more by these changes. Thus, climate change is not only an environmental problem, but also an economic and social one.

Despite warnings about the dangerous consequences of increased GHG emissions and disturbances in ecosystems, emissions have increased, and impacts are felt more clearly than ever all over the globe (Eriksen et al., 2015a; Nightingale et al., 2020). As such, it is urgent to transform the practices, systems, and economies that support the status-quo. The increasing impacts from climate change makes it clear that adaptation – as well as mitigation – is crucial to reduce impacts (Eriksen et al., 2015a). In early work, mitigation of GHG-emissions is what was prioritized in regard to climate change, but as experiences of climate change impacts are increasingly taking place across the globe, adaptation strategies have gotten more space and priority in research and policies (Bond & Barth, 2020). However, many authors argue that how climate change is understood, will have impact on how it is addressed and which solutions that are posed (Bond & Barh, 2020; Leichenko & O’Brien, 2019; Eriksen et al., 2015a; Nightingale et al., 2020). Climate change has usually been seen as an environmental problem, even though “climate change is one of the most important symptoms of an unsustainable economic system” (Eriksen et al., 2011, p. 9). Thus, there is little attention to the underlying social, cultural, political, and ethical dimensions that create unsustainable systems (Eriksen et al., 2011).

2.2 Nudging

As we have seen, there are contestations of how to address climate change and solutions for adapting to these challenges are numerous and diverse. Strategies for climate change adaptation find place at different levels – local, global, systemic, individual. Nudging is a strategy for behavioral change that has become increasingly used by many policymakers, governments, and academics since the popularization of the concept in 2008 when Thaler & Sunstein (2008) published their *Nudge* book (Schmidt & Engelen, 2020; Schmidt, 2017; Hummel & Maedche, 2019). Thaler & Sunstein (2008, p. 6) define nudging as “*any aspects of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives*”. This tool contrasts with more traditional tools such as bans, injunction, economic incentives, information, and attitude campaigns. There are some important characteristics to nudging. First, nudging is used to change behavior, not attitudes. As no alternatives are forbidden and there should be freedom to choose, the

opportunity to choose something else still exist. And lastly, there should not be any big changes to economic incentives (Thaler & Sunstein, 2008; Schmidt & Engelen, 2020).

Nudging theory derives from behavioral economics and psychology about how people make choices and how the environment around us to a large extent influence decisions. As a contrast to neoclassical economics, where humans are considered to be able to make decisions based on rational-choice, the concept of nudging can “illustrate the boundaries of rational decision-makers” (Hummel & Maedche, 2019, p. 48). Thaler & Sunstein (2008) make the distinction between what they call Econs – homo economicus/economic man – and Humans – homo sapiens – when they argue rational choice theory and theories of the economic man are flawed. For instance, Humans can be influenced by both incentives and nudges, while Econs only respond to incentives. They further introduce two systems of how we think: the automatic system (system 1) and the reflective system (system 2) – which is called dual process theory. The automatic system is unconscious, fast, and instinctive, which makes it the system that are used when we act involuntary and quickly. While the reflective system is more self-conscious, controlled, and deliberate, which is used when i.e., alternatives are evaluated and are associated with thinking. System 1 is not always reliable, but system 2 is much slower (Thaler & Sunstein, 2008; Evans et al., 2017). Also, the automatic, intuitive, way of thinking is not always reliable, but the reflective system is much slower. Econs use the reflective system (Thaler & Sunstein, 2008). As such, nudges work by triggering or tapping into the automatic system 1 (Schmidt & Engelen, 2020), because most decisions at everyday basis are taken by the first system (Thaler & Sunstein, 2008).

According to Schmidt (2017, p. 404), the more knowledge about the way people makes decisions increases, the more “proponents of nudging suggest using this knowledge to tweak choice environments in a way that nudges agents into choosing options that are good for them”. These choice environments are what Thaler & Sunstein (2008) refer to as choice architecture, while the ones behind the ‘tweaking’ is what they call the choice architect. The choice architect is responsible “for organizing the context in which people make decisions” (Thaler & Sunstein, 2008, p. 3). This terminology emphasizes that choices are designed to facilitate for change, preferably for the better. According to Thaler & Sunstein (2008) the choice architecture should be designed in a way that influences Humans, implying that the choice architect should have knowledge about human behavior and should thereafter trigger the automatic system. They also acknowledge that there it is not possible to design this choice architecture in a neutral way.

Schmidt & Engelen (2020) argue that choice architecture is inevitable and will always be intentional.

Thaler & Sunstein (2008, p. 109) give what they call “six principles of good choice architecture”. 1) defaults, which is the option that happens if one does nothing, and one have to opt out of the given choice. It is usually a preferred tool for yes-or-no questions. However, it is a very powerful tool, because many people do not like to make many decisions, and often prefer a good default. 2) expect error, meaning that people make mistakes and/or are forgetful. The choice architect should take this into consideration when making the nudge. 3) give feedback, a good nudge and a good choice architecture will provide information about whether people are doing well or making mistakes, i.e., giving warning signs, telling us when something has been done or not done (e.g., the click of a camera when a picture is taken). 4) understand mappings, meaning that there are many choices that are hard to make or even understand. Therefore, “a good system of choice architecture helps people improve their ability to map and hence to select options that will make them better off” (Thaler & Sunstein, 2008, p.101). This could be done by making options more comprehensible. 5) structure complex choices, when options become numerous, there is a need for structure of the different options. The choice architecture should present these structures differently in accordance with the different options. 6) incentives, not purely economic incentives per se, but that choice architecture can steer people towards incentives, e.g., by letting people know the cost per hour of electricity instead of getting the bill at the end of the month. It is important to have different tools to different types of behavior, nudges are about making choices simple, social, and attractive (Thaler & Sunstein, 2008, p. 93-109).

For Thaler & Sunstein, and most policymakers and academics, there is an assumption that choice architecture will be based on scientific knowledge about how people behave (Schmidt & Engelen, 2020; Ewert, 2020). According to Ewert (2020) this knowledge is usually developed through scientific evidence-based experiments and randomized control trials (RCTs). For policymakers, insights from these types of experiments can help understand how people’s bounded rationality is most often framed by the environment around them (Ewert, 2020). Such experiments are what Leichenko & O’Brien (2019, p. 44) define as positivistic science, “whereby physical processes and interactions are objectively observed, understood, modeled, and validated”. Another important aspect about nudging, is what Thaler & Sunstein (2008) call *libertarian paternalism*. They explain that the libertarian aspect is based on the notion that people should have the freedom to choose what they like to do, but also be able to opt out if

they want to. The paternalistic side is based on “the claim that it is legitimate for choice architects to try to influence people’s behavior in order to make their lives longer, healthier, and better” (Thaler & Sunstein, 2008, p. 5).

3. Theoretical concepts

3.1 Adaptation and climate change discourses

Adaptation refers to the actions and adjustments that are taken in response to climate change impacts (Leichenko & O'Brien, 2019). Leichenko & O'Brien (2019) divide adaptation strategies into three: technical, managerial, or behavioral. The technical adaptations involve physical measures or installations to adjust to the changing climate – i.e., installing irrigation systems, but also to take advantage of the changing climate environments – i.e., growing plants and crops where it was not possible before because it was too cold. The managerial adaptations include the establishment of regulations and policy measures to adjust to a changing environment. This could be establishing regulation on extraction of resources, or early warning systems for climate events/shocks. Lastly, the behavioral measures include the changing of behavior to adapt to climate change, such as education, information to raise awareness, or changing patterns in agricultural practices (Leichenko & O'Brien, 2019).

How adaptation takes form and is understood is in relation to how climate change (and in extension sustainable development) is understood (Bond & Barth, 2020; Leichenko & O'Brien, 2019; Eriksen et al., 2015b). Here, discourses play a vital role on how adaptations efforts are established and shaped. Foucault define a discourse as something that can be understood as a system of representation (e.g., norms, rules, languages, and institutions), how we represent a particular knowledge of a topic and how that knowledge is constructed in a certain way, will influence the way some meanings and perspectives are legitimized over other meanings and perspectives. Discourses will approach the political and power structures differently (Leichenko & O'Brien, 2019; Haslam et al., 2017; Hall, 2018; Robbins, 2012).

Leichenko & O'Brien (2019) introduce four discourses on climate change, which I find relevant for how and what adaptation measures are considered. The biophysical discourse highlights climate change as an environmental problem, and solutions to the problem are through policies, technologies, and behavioral changes. The critical discourse will look at how climate change is both a social problem, emphasizing the economic, political, and cultural processes that creates unequal power-patterns in development. Within a dismissive discourse there will be no need to address the climate change problem since it is not seen as a problem at all or at least not an urgent one. The last discourse they introduce are the integrative discourse, where climate change is seen as both an environmental and a social problem that has its roots in the beliefs

and worldviews of how one sees the relationship between nature and society (Leichenko & O'Brien, 2019).

The mainstream understanding of climate change has been at the biophysical level. Climate change has then been understood as an environmental problem, and adaptation responses has largely been policies, technologies, and behavioral changes. According to Nightingale et al. (2020) this can lead to a technical trap, which is based on a dualism of nature and society where nature is seen as something separated from society, and something that can be controlled, exploited, and preserved. This dualism has a tendency to create solutions to climate change that is techno managerial. This often represents a top-down approach to dealing with climate change and development (Nightingale et al., 2020). Eriksen et al. (2015a) explain how both poverty and environmental issues have usually been seen as a hindrance to development and economic growth. As such, adaptations strategies have often been 'mainstreamed' into already existing development policies and projects. In this paradigm, especially technological fixes have been prioritized as the solution (Eriksen et al., 2015a; Leichenko & O'Brien, 2019).

According to Eriksen et al. (2015a) the goal of development is then economic growth. This is within a capitalist market system, and thus adaptation strategies are usually taking place in the 'development as usual' paradigm. Bond & Barth (2020, p. 1) emphasize how "the existing systems of neoliberal capital accumulation and associated social, political, and institutional norms mean that it is likely that many adaptation policies will end up locked into such unjust outcomes". Even though the actors involved in different adaptation strategies are many and diverse, the institutional structure – who does partnerships exists of, who is financing, what tools are used, how are they used – is usually upholding existing systems of 'development as usual' (Eriksen et al., 2015a). This can also be seen in how adaptation is usually described as a local concern, while in reality it is much more complex, and people and places are much more interlinked due to globalization (Atterigde & Remling, 2017). Adaptation has been seen as development projects that focus on reducing climate change impacts but are more or less implemented "without upsetting the social-political order" (Eriksen et al., 2015a, p. 7).

3.2 Adaptation and vulnerability linkages

Vulnerability, in this context, can be defined as being more exposed to a climate change shock, but it is also about the resources one has (or not has) to be able to cope with the shock. Climate change has often been seen as something that disrupt livelihoods, especially to the most

vulnerable (Leichenko & O'Brien, 2019). There is much literature on the interlinkages between vulnerability and development. Here, climate change is a factor that can exacerbate vulnerabilities, and adaptation is then 'development projects' aimed at reducing these vulnerabilities caused by climate change. However, these projects rarely take a critical stance to address "the underlying causes of vulnerability that are linked to social structures, economic relations, the distribution of power and access to resources" (Eriksen et al., 2015a, p. 6). Eriksen et al. (2015a) emphasize that climate change is not creating vulnerability alone. They argue that social factors – such as injustices, marginalization, oppression, access and rights to resources, and poverty – also take part in creating vulnerabilities. As climate change impacts, but also the adaptive capacity, are unequally distributed these underlying factors are one of the main causes to vulnerability.

It is important to challenge some of the structures in which adaptation takes place, because there is uncertainty if adaption intervention will actually address these underlying reasons to vulnerabilities to climate change. Development interventions and adaptation strategies can also be exacerbating or add to vulnerabilities (Eriksen et al., 2015a). Eriksen et al. (2021) find three ways that adaptation can drive vulnerability: 1) existing vulnerabilities are reinforced through adaptation interventions; 2) some interventions will redistribute vulnerability; and 3) adaptation can create new types of vulnerability. They also identify four mechanisms that can create these outcomes: first, insufficient understanding of the context that creates vulnerability; second unfair participation from stakeholders in both the process of design and implementation; third, placing adaptation measures in already existing development agendas; and lastly, how 'adaptation success' is usually defined through the dominant development discourses, which needs critical exploration (Eriksen et al., 2021).

3.3 The politics of adaptation

According to several authors (i.e., Eriksen et al., 2015a; Eriksen et al., 2015b; Eriksen et al., 2021; Atteridge & Remling, 2017; Bond & Barth, 2020) adaptation needs to be understood as a socio-political process. Eriksen et al. (2015a) note that addressing adaptation in this way does not necessarily make technical adaptations irrelevant but will not be sustainable unless also social and political relations are addressed. Adaptation as a social and political process means giving attention to how vulnerability is shaped at the systemic and structural level, while also recognizing the action taken at the practical level (Eriksen et al., 2015a). Eriksen et al. (2015b,

p. 524) argue that adaptation is a socio-political process that “mediates how individuals and collectives deal with multiple types of simultaneously occurring environmental and social changes”. It also requires addressing the different spheres of policy and power that takes place over time and space – i.e., how negotiations of decisions, interests, and implications take place (Eriksen et al., 2015a; Eriksen et al., 2015b).

Eriksen et al. (2015b, p. 524) argue that to better understand the injustices and inequities in social and political processes, there is a need for “attention on the contexts within which authorities, knowledges, and subjectivities come together to shape what counts as adaptation and for whom”. Drawing on social theory understandings of power and politics, they apply the theoretical concepts of authority, knowledges, and subjectivities to better understand the dynamics of society-climate change. These concepts can together explain how power is embedded in everyday practices at a local level but also at a global scale, and how i.e., environmental problems and responses are shaped (Eriksen, 2015b).



Figure 1: Key interactions framing the politics of adaptation (Eriksen et al., 2015b, p. 529).

The figure above shows the interactions between the theoretical concepts of authority, knowledge, and subjectivity. By authority Eriksen et al. (2015b) talk about how power is exercised at different scales and in different processes that have an impact on who, be it individuals or institutions, that will have influence and ability to apply different agendas in the adaptation process. Authority refers to the power in who can make decisions, which decisions

are decided, whose interests are prioritized, and how and who the outcomes of adaptations are. While knowledges refer to the existence of different knowledges that go beyond just scientific knowledge in climate change and adaptation understandings. Knowledge can reinforce and legitimize authority, but the authority that is legitimized can also be challenged by knowledge. Here, it is important to question the legitimization of scientific knowledge about climate change and in policymaking, and how this has been institutionalized. Eriksen et al. (2015b) argue that there is a need for local knowledges to be included in understandings of climate change and policymaking, but also in decision-making.

This, I find, is closely related to Michel Foucault's knowledge-power relations. He worked with the relationship between knowledge, truth, and power. This is an approach that tries to understand the underlying power of who constructs knowledge and truth and how it is used (Haslam et al., 2017; Robbins, 2012). Even though he himself was not very concerned with issues of the Global South, he stresses that the instability of what we know as truth and knowledge are expression of power, especially from the West and Europe. This approach of knowledge-power relations is based on the idea that what is perceived as knowledge and science is based on western and colonist understandings and concepts (Haslam et al., 2017; Peet & Hartwick, 2009; Robbins, 2012). It is through discourses that knowledge is defined and produced (Hall, 2018) and understood as objective truth (Haslam et al., 2017). Foucault argues that there is no objective and neutral truth because knowledge is embedded in values and power (Robbins, 2012). This is explained through hegemonic understandings, where the authority sets the norm.

The reinforcing effect of authority and knowledge are dynamic and will affect the subjectivities that emerge. Subjectivities can explain the social processes – and operation of power – that influence the lives of individuals. Here, internalized cultural codes, discourses and practices, and the interconnected power structures are significant for how subjectivities emerge – such as gender, class, race, ethnicity, etc. Subjectivity is important for understanding how people interact with each other in certain contexts, such as environmental governance. Subjectivities are not stable and can be affected by authority and knowledge, and how power is infused in these relations. Subjectivities can be reproduced through adaptation, but if the process of adaptation clash with the cultural codes, it can create conflicts (Eriksen et al., 2015b).

A closely related theoretical approach is post-colonialism, which is a response to the colonist thought and ideology, that focuses on the consequences of the colonist's control and

exploitation of the colonized and their lands. It is an ideology that study social and political power-relations between the colonizer and the colonized. It focuses on the binary power-relations of understandings, descriptions, and concepts of ‘us’ vs. ‘them’, that derives from the knowledge that the colonist’s generations have about the colonized people (Peet & Hartwick, 2009; Robbins, 2012). These binary logics, the Western hegemony and paternalism of developing countries, are rooted in most of the modern development ideas and projects (Peet & Hartwick, 2009; Robbins, 2012; Coetzee & Söderbaum, 2016). I find especially the work of Gayatri Chakravorty Spivak interesting in relations to subjectivities. She looked at the conception of subject positions, she “sought to reinscribe the many, often contradictory, subject positions assigned by multiple colonial relations of control and insurgency” (Peet & Hartwick, 2009, p. 211). The intersectionality, for instance of subaltern women, entails interaction between class, gender, and ethnicity. Spivak wanted to explore this intersectionality and heterogeneity beyond the binary understandings (colonizer-colonized) of colonial powers.

3.4 Design of the thesis

I will approach the analysis through the key concepts, authority, knowledge, and subjectivities, the way that they are presented in the figure above. This I will do by operationalizing factors that are relevant for discussing these three elements in the model separately, while knowing that there is overlap and reinforcing dynamics between them. I will return to the connection between them in the concluding discussion of the thesis. I will then identify arguments to illuminate the three sub-research questions. Then, through selected literature, I will identify challenges related to nudging in relation to the three elements in the model individually. After going through arguments found in the literature I have chosen, I will relate these to a more general discussion where the theories I have presented at the beginning will be applied. This approach presumes that I identify the specific characteristics of nudging as a tool in public policy. The literature I have chosen is partly about specific issues related to climate change/sustainability and partly about discussions about generic questions related to nudging and behavioral change approaches. The articles I have chosen will, to varying degrees, deal with questions that concern one or more of the elements in the model.

4. Methodology

In this chapter, methodology and research design will be presented. To gain insight into challenges with using nudge as a climate change adaptation strategy a document review of selected articles, chapters in books, and reports were conducted. To properly address the topic and research questions, this research is of a qualitative nature as it requires a more in-depth knowledge (Bryman, 2016; Silverman, 2014; Johannessen et al, 2016). Bryman (2016, p. 33) describes qualitative research as a strategy “that usually emphasizes words rather than quantification” and how the social world is constructed and interpreted by individuals. According to Queirós et al. (2017, p. 370) “the objective of the qualitative methodology is to produce in-depth and illustrative information in order to understand the various dimensions of the problem under analysis”. In this chapter, I will give an account of the qualitative methods of sampling and analysis used in this research. Reflections of limitations and ethical considerations will also be included.

4.1 Study samples and sampling method

To address my research questions adequately a purposive sampling method was chosen. Within this approach to sampling there are several sampling methods. Here, I have used criterion sampling and snowball sampling.

As my research questions were already established through my study, purposive sampling was chosen to gather specific units to appropriately answer my research questions. According to Bryman (2016, p. 407) the research questions are placed “at the heart of the sampling consideration” when purposive sampling is used. Purposive sampling is a form for non-probability sampling, meaning that the samples are not random. This sampling method entails that the units (literature) were selected based on their relevance to the research and derived from the research questions (Bryman, 2016). This research is what Bryman (2016) calls fixed or priori purposive sampling, where the literature that is sampled in the study is established before conducting the research.

There is extensive academic literature about behavioral change and public policy, which is essentially very relevant for my research. Within this research tradition, I have chosen to focus on nudging primarily because it is both theoretically and empirically a somewhat more limited phenomenon. As the introduction shows, I have described nudging particularly as how Thaler

& Sunstein (2008 and 2021) have presented this theory. I have searched after literature based on the following search terms:

- Nudging and climate change policies (hits from google scholar: approximately 45 600)
- Nudging and sustainable policies (hits from google scholar: approximately 41 500)
- Nudging and environmental policies (hits from google scholar: approximately 57 900)
- Nudging and developing countries (hits from google scholar: approximately 61 300)

As it turned out, these search words show that there is an enormous production of scientific and normative literature on nudging. Thus, using relevant sampling methods is important. There are several relevant purposive sampling approaches that can be applied in this thesis. Since the sampling method was based on fixed purposive sampling, I initially used criterion sampling, where the units are picked because they “meet a particular criterion” (Bryman, 2016, p. 409). These criteria were based on nudge theory, but also their relevance to the theoretical concepts used in this thesis, especially Eriksen et al.’s (2015b) theorization of the politics of adaptation. As such, the literature was chosen because they either discussed principles related to nudge practices, such as choice architecture, and/or nudging and environmental climate change policies. Still the relevant literature could potentially be overwhelming and therefore snowball sampling was also applied. Snowball sampling is a method of sampling where the cases/examples were chosen because they suited the research, but they could also suggest and/or lead me to other relevant documents and cases (Bryman, 2016; Silverman, 2014; Bhattacharjee, 2012; Johannessen et al., 2016). When searching for literature, some of the units I sampled would refer me to other literature that turned out to be relevant. At the outset of this thesis study, I talked with a researcher on nudge and climate change that introduced me to the topic and relevant literature. Here, some of the literature referred to nudge and behavioral public policy. When researching for background material on nudge, I then used the search word *nudge and behavioral public policy* (hits in google scholar: approximately 44 400). On the first page in google scholar Ewert (2020) appeared and I found that this article suited the criteria. Ewert (2020) referred to the Handbook by Straßheim & Beck (2019) where I picked out three relevant chapters. One of these chapters, Bornemann & Burger (2019), mentioned ‘green nudges’, which I then applied as one of my search words in google scholar (hits in google scholar: approximately 56 000). Here, Evans et al. (2017) appeared on top of the second page.

As discussed in the introduction, I consider ‘nudging’ policies as an integrated part of ‘behavioral’ public policy, with specific properties related to the governance tool feature described above. In order to frame the discussion to this nudge approach, and due to time and

practical considerations, I have made selections of literature I find suitable for my purpose: to analyze and discuss how nudging strategies might influence climate change and sustainable policies. This final selection of literature was chosen because together they can address the discussion around some of the key concepts that nudge theory is based on and that this thesis discusses. These concepts are often discussed at a more generic level, but they could give an understanding of how they potentially can be applied to more specific target areas. Accordingly, the selected literature should be considered as a research strategy to illuminate issues regarding this topic, obviously without intending to be representative for the global literature in this respect.

The articles/book chapters I have chosen are primarily selected due to either addressing general issues like strengths and weaknesses in nudging theory and practice, or because they address the more specific issues regarding nudging in climate change and sustainable policy analyses. I decided to concentrate some of my discussion to three chapters in Straßheim & Beck (eds). (2019) *Handbook of Behavioural Change and Public Policy*, which offers a broad and comprehensive presentation of important issues related to the understanding of the broader concept of behavioral policies and nudging policies in particular, based on contributions from authors from economics, social science, political science, organization theory and behavioral psychology. Several chapters in the book will inform my discussion, but after having searched the book on what I considered to be particularly relevant literature to shed light on ‘nudging’ policies, I concluded that those three works would become prioritized here. Two of these chapters deal with general issues regarding nudging theory, still with references to environmental policies/sustainable policies, while one chapter address nudging and sustainable policies. In addition to these chapters, I selected one chapter from the revised version of Thaler and Sunstein (2021) which discusses environmental policies in relation to the nudge theory presented in the book. Also, one comprehensive report on *Green Nudging* (Evans, Eickers, Greene, Todorovic, and Villmow, 2017), and one research article on the broader understanding of behavior public policy by Ewert (2020) were selected. This selection of literature is, as I see it, sufficient to offer adequate and sufficient data for my study.

The articles/book chapters/reports are:

- 1) Thaler & Sunstein (2008/2021): *Nudge*. This book from 2008 is regarded the starting point of the nudging discourse, becoming a world famous and awarding the Nobel Honorary Prize in Economics in 2008. While I refer to the general description of nudging theory/-ies in the introduction of my thesis, here I will concentrate on Chapter 14, “*Saving the Planet*” from

the 2021 edition. Here, nudging policies is presented as a way to solving global crises due to climate changes and the need for sustainable policies worldwide.

- 2) Evans, N., Eickers, S., Greene, L., Todorovic, M. & Villmow, A. (2017): *Green Nudging. A discussion and preliminary evaluation of nudging as an environmental policy instrument*. This is a report based on a research project performed by academics at the Environmental Policy Research Center at the Freie Univeritat, Berlin. This report offers an “*extensive overview*” of the subject, and also a critical discussion of the criteria, efficacy and effectiveness of nudging policies as well as an evaluative framework and the “commonly neglected dimension of ethics” (Evans et al., 2017, abstract). The report is divided into three sections, presenting the theory of nudging, nudging as an addition to the traditional policy toolkit in environmental policies, and presents a model for a policy evaluation for nudging, addressing environmental issues and green nudging. Here, ethical problems relating nudge and environmental policies are critically scrutinized.
- 3) Whitehead, M., Jones, R. and Pykett, J. (2019): *Nudging around the world: a critical geography of the behaviour change agenda*. This is a book chapter (Ch. 7) in Straßheim and Beck (2019) which documents the geographical dissemination of nudging policies – both by governments and other actors (both private and public). By separating between the global concept of ‘behavioral policy strategies’ and the more specific and limited concept of ‘nudge’ policies, the chapter is relevant for my purpose for two reasons particularly: by clarifying the concepts of ‘behavioral policies’ and ‘nudging’ and by discussing the geographical outreach of these concepts in regions of the world. The chapter also address the complex relations between governmental policies and other economic and social institutions/actors, including considerations of how a geographical perspective can add a critical approach on these developments.
- 4) Bornemann, B. and Burger, P. (2019): *Nudging to sustainability? Critical reflections on nudging from a theoretically informed sustainability perspective*, is another chapter in the Handbook (Ch. 15). This chapter discusses ‘nudging’ strategies asking how and to which extent nudging might be a global or local strategy to obtain sustainable solutions at different levels of society. The point of departure is the fact that some public authorities around the world have initiated units for designing and implementing nudges which has triggered a ‘controversial discussion’ about these efforts. Based on this discussion the authors of the chapter intent to clarify arguments in favor of and against how nudging policies are presented regarding the conditions for sustainable transformations. Here, nudging from a

theoretically informed sustainable perspective includes how nudging relate to different aspects of sustainability: justice-based sustainability, resilience-based sustainability, and procedural sustainability. Potential tensions between nudging policies and sustainability strategies are scrutinized in some detail.

- 5) White, M.D. (2019): *Nudging: ethical and political dimensions of choice architectures*, also a chapter in the Handbook (Ch. 22). Here the concept of ‘choice architecture’, which is a central element in designing nudging policies, is critically scrutinized. The chapter details a number of ethical and political concerns referring the discussion on paternalism which is a central part of the Thaler & Sunstein’s theories on ‘libertarian paternalism’.
- 6) Ewert, B. (2020): *Moving beyond the obsession with nudging individual behaviour: Towards a broader understanding of Behavioural Public Policy*. In this article Ewert discuss how behavioural science has a potential to a wide-ranging reassessment of policy-making and public administration. He claims that Behavioural Public Policy (BPP) is a public policy paradigm under construction, and should be seen as a pluralist, non-deterministic and multipurpose approach. The article develops arguments in three steps: it explores the policy rationales of nudge techniques, and he makes a summary of the conceptual, methodological, ethical, and ideological criticisms of nudges. Secondly, it reviews the contrasts between BPP and ‘nudge’ techniques. And thirdly, it refers to an empirical study where ‘global thinkers’ (academics and practitioners) are interviewed about the status and role of BPP and nudging. The article thus offers a critical and analytical discussion which is particularly relevant by separating behavioural science in general from nudging as a theoretical concept/theory.

All these documents relate, however in variable ways, to issues central to my discussion on authority, knowledge, and subjectivity. Accordingly, my analysis of these three elements will be discussed drawing on discussions potentially from all the selected literature.

4.2 Data collection and data analysis

According to several scholars there are different ways to collect data. Marshall and Rossman (1995) mention as primary qualitative methods participation, observation, in-depth interviewing, and document analysis. This overlaps to a large degree with Johannessen et al. (2016) and Silverman (2014). However, to adequately answer my research questions and the overall goal of the thesis, a document analysis has been applied in the collection of data from

the literature I mentioned above. To properly analyze the data, I chose a combination of content analysis and thematic analysis, though there are many ways to do this.

Data collection is gathering of information through different, but interrelated, activities to address the research questions. The researcher also collect data based on what is the most relevant and reliable derived from the research questions (Johannessen et al., 2016). Bhattacharjee (2012) divide data collection into two broad categories: positivist methods and interpretive methods. Interpretive methods depend heavily on qualitative data and often apply an inductive approach, meaning that theory is usually generated out of the data (Bhattacharjee, 2012). While Bryman (2016) introduces two other features, in addition to an inductive view to qualitative research: an epistemological position, where the researchers examine the participants' interpretations of the world, and an ontological position, "which implies that social properties are outcomes of the interactions between individuals" (p. 375). Based on this, I consider qualitative data most relevant to address my research questions.

Documents refers to all written sources which are relevant for the researcher (Johannessen et al., 2016). Johannessen et al. (2016) describe documents as preserved records of a person's thoughts, actions, and creations. Bryman (2016) mentions as primary documents personal documents, official documents deriving from both the state and private sources, mass media outputs, and virtual documents. While Bowen (2009, p. 27) maintain that "documents contain text (words) and images that have been recorded without a researcher's intervention", which is in line with Silverman (2014). Since documents are created by someone, they can tell us something about the writers, their understanding of reality, and their viewpoints (Johannessen et al., 2016; Bryman, 2016). Bryman (2016, p. 561) argue that documents should be recognized as "texts written with distinctive purposes in mind, and not as simply reflective reality".

Analyzing documents consists of processing and interpreting the data to obtain understandings, meanings, and for empirical knowledge to be developed (Bowen, 2009; Johannessen et al., 2016). Document analysis is used to gain important contexts and relevant information about different relationships and conditions in society that the researcher wants to study (Johannessen et al., 2016). The process of doing document analysis involves skimming, which is a superficial examination of the document, reading, which is a more thorough examination, and lastly interpretation of the data (Johannessen et al., 2016; Bowen, 2009). I selected the documents by skimming through documents that initially seemed relevant based on the criterion that was established prior to the data collection (see above). If they were relevant, I would read and do

a more thoroughly examination of the document, and then in my analysis I would interpret them.

This process of conducting document analysis is usually done with a combination of content analysis and thematic analysis (Johannessen et al., 2016; Bowen, 2009), which was also applied in this research. As I understand it, content analysis and thematic analysis are intertwined methods, while also supplementing each other. Berg & Lune (2012, p. 349) define content analysis as “a careful, detailed, systematic examination and interpretation of a particular body of material in an effort to identify patterns, themes, biases, and meanings”. While Bowen (2009, p. 32) argue that content analysis “entails first-pass document review” and information gained from this review should be organized into categories that relates to the research questions. In line with the first step of content analysis that Bhattacharjee (2012) introduces, I have in my analysis used content analysis to select pertinent texts for my research. Bhattacharjee’s (2012) two next steps of content analysis is ‘unitizing’, where segments of text is categorized, and coding, where the researcher add concepts to the categories (explained more below). In my analysis I used content analysis to find important and relevant categories deriving from my research questions and theory, which I then applied in my thematic analysis. Bowen (2009, p. 32) maintain that thematic analysis “involves a careful, more focused re-reading and review of the data”. In thematic analysis the researcher looks for patterns, such as repetitions, categories, metaphors, commonalities, differences, missing data, and theory-related material (Bryman, 2016). By doing this, the researcher looks for important themes in the data that is relevant for the phenomenon studied (Bryman, 2016; Bowen, 2009). According to Johannessen et al. (2016) when identifying and categorizing themes, we create structure in the data and find new relationships between the categories. To do this, one is dependent on coding to identify important themes in the data (Bryman, 2016).

I based my analysis on the overall research question and the sub-questions. The codes are established on the basis of review of the literature I identified, and categories, themes and codes run across the research questions. Coding the data can be done in different ways (Bryman, 2016; Bowen, 2009; Bhattacharjee, 2012). I chose to do this by hand, where I highlighted and color-coded important points in the data. I started this by getting an overview to familiarize myself with the data. I then looked for important repetitions, similarities and differences between the literature and looked for codes, such as the legitimacy to design nudges. Codes, such as ‘UK’s Behavioral Insights Team’, ‘USA’s Social and Behavioural Sciences Team’, ‘World Bank’, ‘USAid’, ‘AusAid’, ‘Unicef’, etc. were then elaborated on and categorized into themes, i.e.,

formal organizations (Bryman, 2016, p. 588). According to Bryman (2016, p. 588) it is important to “examine possible links and connections” between these categories, as this is important to be able to see the big picture (Johannessen et al., 2016).

When conducting my analysis, I looked for codes in the data that could be categorized into themes. I did this by highlighting important passages, sentences, words that related to my research questions. As already mentioned, I chose to do this by hand where I first color coded based on what would be relevant for a discussion around ‘authority’, ‘knowledge’, and ‘subjectivities’, and a more general discussion separately. I then collected all my data that was relevant for ‘authority’ and tried to find important repetitions, similarities, and differences in the different literature. For instance, in Whitehead et al. (2019) I highlighted 17 places that I found relevant for a discussion around ‘authority’. These could either be words, sentences, or longer passages of text. Examples of words could be “UK’s Behavioral Insights Team”, “the World Bank”, “charities”. A sentence could be: “Over recent years the World Bank has become interested in the way in which the emerging insights of the psychological and behavioural sciences could be used to shape international development policies” (Whitehead et al., 2019, p. 90). While an example of a longer passage could be:

“So, Richard Thaler acted as a consultant to the UK government when it was in the process of developing the apparatus of its behavioural state. The resultant Behavioural Insights Team has inspired the US government to develop its own ‘nudge squad’ and advised the government of New South Wales in Australia. In terms of Europe, it is clear that the European Commission is playing an important role in the promotion of the behavioural sciences within its member states” (Whitehead et al., 2019, p. 96).

After I had collected repetitions, similarities, and/or differences, I looked for codes that could give me important themes. The themes derived from this analysis relates to the three concepts in Eriksen et al.’s (2015b) model: authority, knowledge, and subjectivities. On the concept authority, the themes discovered were *the global spread (of behavioral policies and nudge policies)*, *formal organizations*, and *policy tool*. The themes relating to knowledge were *choice architecture* and *evidence-based science/knowledge*. Lastly, the themes derived that relates to subjectivity were *target groups* and *ethics*.

4.3 Assessment of study limitations and trustworthiness

In this section, the limitations and trustworthiness of the study will be assessed, where I aim to provide transparency of the research. I tried to maintain the trustworthiness and authenticity of this study in the best way possible, even when this study is considered small-scale. When discussing strengths and weaknesses of this effort, I identify the trustworthiness in accordance with Guba's model of trustworthiness of qualitative research presented in Krefting (1991). This model identifies four aspects of trustworthiness, that in principle are relevant for both quantitative and qualitative studies (Krefting, 1991). While, emphasizing the overall similarities of quantitative and qualitative research, the Guba-model focuses upon the peculiarities of qualitative design by identifying truth value, applicability, consistency, and neutrality as the four criteria of trustworthiness in qualitative research. By further elaborating on these concepts, Krefting (1991) summarizes four strategies with which to establish trustworthiness, each with a number of criteria. While authenticity, according to Bryman (2016, p. 386) "raise a wider set of issues concerning the broader political impact of research". Krefting (1991, p. 215) further emphasize that qualitative research entails many different methods of research and purposes, and as such "it is important not to fall into the trap of assuming that all qualitative studies should be evaluated with the same criteria".

4.3.1 Delineations and scope

According to Bryman (2016) the sampling size should neither be too small nor too big. This is because if the sampling is too small, it can be difficult to accomplish saturation, while if it is too big, it can be problematic to execute a deep analysis of the data. Due to the short time span of this study of only 6 months, the scope of the study had to be set within some limitations. As such, I find the delineations of the six book chapters/article/report that was selected for this research sufficient for the scope of this study. This is closely related to transferability, which means applicable beyond the study. Krefting (1991, p. 216) argue that transferability criteria are met if the study can fit into other contexts, are similar to other studies, or have "descriptive data that allow for comparison". As I see it, the study design and the findings cannot easily be applied to other specified cases or theories due to the limited number of literature and the scope of the study. In accordance with this, this study does not aim to make any generalizable conclusions and I would rather like to see it inspire more comprehensive research designs in the future (I will return to that in the final section of the thesis). This is in line with Krefting

(1991, p. 215) that states that often in qualitative research “the major purpose is to generate hypotheses for further investigation rather than to test them”.

One limitation in the selected literature was that nudging was mainly discussed as a generic phenomenon, but in a few of the articles related to climate change or sustainability as well. However, the analysis could have become more specific if some of the literature had mentioned target groups and their experiences of nudges more generally or more specifically related to climate change. When I realized that this was the case, I decided to change one of the sub-questions in order to make the data analysis more consistent with the literature I selected. The original sub-question was: *Which target groups are addressed when nudging strategies are introduced regarding climate change adaptation ('subjectivities')?* This changed to: *What are challenges for different target groups when nudge strategies are introduced ('subjectivities')?* This made it easier to perform the analysis about target groups within the section of subjectivities.

4.3.2 Implications for the research

When conducting research, it is important to consider your own role as a researcher. Ethical considerations are not only related to conducting research with participants, where informed consent, anonymity, and confidentiality are important. However, when doing a document analysis of publicly available documents, ethical issues can relate to maintaining academic integrity by considering how the interpretation of the data are done, how the researcher communicates the data and results, avoiding plagiarism, and how the positionality of the researcher are considered (Bryman, 2016; Berg & Lune, 2012; Hall, 1990).

As mentioned earlier, it is important to consider that the authors of documents have a specific purpose of writing the texts, and documents should be understood as reflecting the understandings and reality of the authors (Bryman, 2016; Johannessen et al., 2016). As such it is important for the researcher to communicate and analyze the data as precisely as possible. Considering this, in my presentation of the findings and analysis, I have included some relevant direct citations from the documents I studied. However, in line with Bryman (2016) “complete objectivity is impossible” in the research process. Krefting (1991) state that “Guba viewed neutrality not as researcher objectivity but as data and interpretational confirmability”. It is therefore important to reflect on my positionality and biases, to maintain transparency, reliability, and credibility of the research. According to Hall (1990, p. 18) you “have to position

yourself somewhere in order to say anything at all”. While Bourke (2014) argue that both the participants – here I consider the worldviews of the authors – and the researcher can have impact on how the research process is shaped. According to Bourke (2014, p. 2) my position in relation to the research is as the data collection instrument and as such important variables that can affect the research process are factors such as “the researcher’s beliefs, political stance, cultural background (gender, race, class, socioeconomic status, educational background)”. Biases relating to these variables might affect the interpretations and observations of the data, the analysis, and the nature of the study. Even though, research objectivity is considered unattainable, I tried not to allow these factors to influence my research.

5. Analysis

In this chapter I will present and discuss the findings from reviewing the literature that I identified. I have divided the analysis in four parts based on my research questions and theoretical framework: first, I discuss the findings related to the first research question that is generated from the *authority* aspect; second, the research questions relating to the *knowledge* aspect will be analyzed; third, a discussion around the third sub-question, that relates to *subjectivities*, will be presented; and lastly, I will take a step back and discuss the findings and draw it together to answer the main research question. Even though the three concepts – authority, knowledge, and subjectivity – are closely related and interlinked, I have chosen to separate the discussion about them. Separating the concepts this way gives a better understanding of the different concepts in climate change adaptation.

In this research I have tried to find relevant data to analyze. As such, the literature I have found is relating to environmental behavior policies (nudge policies), the geographical spread of behavior policies, and behavior policies and nudge policies more generally. This way, my analysis will relate to both nudging regarding climate change and sustainability, but also a more general discussion is given. However, the more general discussion often relates to, call it, ‘background’ for nudges, such as libertarian paternalism, choice architecture, the evidence-based approach, etc., or e.g., the ‘formal organizations’. By analyzing the findings this way, I find that I get a more holistic discussion about the role of nudging in (climate change) adaptation strategies.

5.1 Authority

In this section I discuss the findings related to the research question: *Who has legitimacy to design nudging strategies (‘authority’)?* The themes derived from my analysis connected to the concept of authority was *the global spread (of behavioral and nudge policies), formal organizations, and libertarian paternalism*. I will here discuss the findings related to the research question. This research question is based on Eriksen et al.’s (2015b) concept of authority.

Authority refers to both the formal and informal institutions and organizations that have “legitimacy to make decisions about environmental governance”, but also about resource governance (Eriksen et al, 2015b, p. 527). These institutions and organizations are diverse and takes place at different levels, i.e., formal government and political spheres, but also at other

'lower', 'local' levels like traditional authorities, neighborhood coalitions, and social movements. Eriksen et al. (2015b) conceptualize institutions as norms, values and practices in which organizations and individuals base their decisions on. This conceptualization then recognizes how norms and values that shape practices can stay the same even if the 'organization' (i.e., a government office) are changed or replaced (and the other way around). Both within and between different actors, organizations, and institutions, formal and informal, power is embedded, and shapes who has legitimacy to decide how adaptation efforts take place and for whom. According to Eriksen et al. (2015b, p. 527) authority provides an important tool for understanding "the mechanisms through different actors are able to further their particular interests in adaptation actions", but also to understand how power and power relations is reinforced and contested in adaptation efforts.

5.1.1 The global spread (of behavioral policies and nudge policies)

As already mentioned, nudging is an integrated part of behavioral public policy, albeit a more specific and precise phenomenon (Ewert, 2020; Evans et al., 2017). Whitehead et al. (2019) gives an overview of the prevalence of behavioral policies and nudge policies globally. It is important to separate nudge policies from behavioral policies, as there is disagreement about how widespread nudge policies are. Whitehead et al. (2019) separates the spread of behavioral policies and nudge policies in their critical research on the geography of the behavioral change agenda. In order to do this, they based their research on two indicators to identify the presence or absence of nudge policies. The first characteristic was that the policy needed to be non-regulatory and as such the liberty of those subjected to the nudge was preserved. The second characteristic was that the policy had to be based on behavioral insights. However, they also emphasize that these indicators would include nudge-type policies that would under many definitions not be considered nudges. They further argue that the definitions they used would allow them to "*track the broader impacts of behavioural and psychological sciences upon which nudge policies are based, and to consider a more varied set of geographical policy definitions*" (Whitehead et al., 2019, p. 93).

Whitehead et al.'s (2019) study revealed that behavioral policies and nudge policies was significantly prevalent in many parts of the world. Their evidence showed that behavioral sciences has had an impact on either the design or the implementation of policies in 135 countries. Of these 135 countries, "*51 had developed centrally directed policy initiatives*

bearing the characteristic policy proxies of the behavioural sciences” (Whitehead et al., 2019, p. 94). These initiatives have a wide range, from opt out organ donation, to automatic pensions enrollment, and tax forms that are pre-filled – which are all widely known nudges. However, I find that there are blurred lines between what Whitehead et al. (2019) call being inspired by behavioral sciences and having an explicit strategy for nudging. Finding policies inspired or impacted by behavioral policies in 135 countries, may seem like it is a very considerable scope, but it is difficult to say anything about what it entails in practice when it comes to the application of nudging strategies in line with Thaler & Sunstein’s (2008) theory.

According to Bornemann & Burger (2019, p. 209) *“governments worldwide have started to build up expert groups and specialized units for designing and implementing nudges as means of political steering”*. However, in their research, Whitehead et al. (2019) found that behavior and nudge policies are more prevalent in some parts of the world. Policies impacted by behavioral sciences are especially prevalent in North America, Western Europe, and Australasia. While in many parts of the world, South (but not central) America, parts of Eastern Europe, and big parts of Middle East, public behavioral policies and nudge policies are absent. Whitehead et al. (2019) argue that generally nudge policies are most popular in English speaking countries where the academics that developed behavioral theories are based. While they state that in this research, they had not included a study on why behavioral and nudge policies are prevalent in some parts of the world, and absent in others, they do recognize that there could be *“more systemic at play, with the political cultures in these regions offering resistance to the uptake of nudge-type behavioural policies”* (Whitehead et al., 2019, p. 95). For instance, they ask whether the more liberal political systems are more inclined to implement public policies impacted by behavioral sciences, than e.g., the more authoritarian political traditions in Eastern Europe for instance. However, they also emphasize that there could be behavioral and nudge policies in these areas, but their research did not pick it up.

Another important aspect of the global spread of behavioral and nudge policies, is what kind of policy areas these types of policies targeted. Whitehead et al. (2019) state that there are also differences in how central governments around the world have promoted and applied behavioral and nudge policies. In some parts of the world, only one policy area has been targeted – e.g., in China where behavioral sciences have impacted the department of health in their HIV/AIDS prevention program. While in other countries, there are several policy areas that have been impacted by behavioral policies, and nudge policies more specifically. For instance, in Belgium the policy areas are organ donation, energy use, and tax payment initiatives. While in other

countries, “including the Netherlands, Singapore, Australia, France, the UK and the USA, have seen more strategic attempts to integrate new behavioral insights across many relevant policy sectors” (Whitehead et al., 2019, p. 97). While in Africa, particularly preventing the spread of HIV/AIDS, improving hygiene practices, and combating the spread of malaria seems to be the most pressing policy agendas (Whitehead et al., 2019). Whitehead et al. (2019, p. 96) argue that “there have been particular acts of policy transfer that have contributed to the concentration of nudge-type initiatives in certain places”. Here, especially different organizations, such as the ‘nudge units’ in the UK and the US but also different international development organizations, have played an important role. This will be further discussed in the next section.

5.1.2 Formal organizations

The most known and obvious formal organizations regarding nudge policies, are the UK and US governmental ‘nudge units’. The UK Behavioral Insights Team (BIT), as it is formally known, was established in 2010, and was the first one to be established in the world (Ewert, 2020; Evans et al., 2017). According to Evans et al. (2017, p. 2) its purpose was “to examine how behavioural science findings can tailor public policy to stimulate citizens towards pro-social behaviour, e.g., saving energy or paying taxes”. Following the establishment of the UK Behavioral Insights Team, President Barack Obama created the Social and Behavioral Sciences Team (SBST) in 2014, situated in the White House (Evans et al., 2017). Whitehead et al. (2019) state that in the process of establishing the ‘nudge unit’, Richard Thaler consulted the UK government. While in the USA, Cass Sunstein was appointed as the head of the Office of Information and Regulatory Affairs (OIRA). “Given that the OIRA has oversight right across the Federal Government, Sunstein was able to apply the insights from behavioural economics and psychology to a range of policy areas” (Whitehead et al., 2019, p. 97).

As mentioned in the section above, Bornemann & Burger (2019) state that implementations of nudge policies and establishments of expert groups (units) are taking place worldwide, while to various degrees (Whitehead et al., 2019). Especially the UK Behavioral Insights Team has been at the forefront for the widespread application and development of policies based on behavioral sciences in many parts of the world. It was the inspiration for the development of the US SBST and advised the New South Wales government in Australia. While in Europe, the European Commission plays an important part in the promotion of behavioral sciences in public policy to its member states seems to be comprehensible (Whitehead et al., 2019). According to Evans et

al. (2017, p. 2) using nudge and behavioral sciences in public policy “*drew attention at the end of August 2014 when Chancellor Angela Merkel advertised three open behavioural insights positions to be housed within the Federal Chancellery*”.

The policy areas that these government ‘nudge units’ seems to be at a more generic level, where nudge and behavioral insights are applied at bigger policy areas. However, these units, especially the UK BIT, also helped and advised other countries on more specific problem areas (Whitehead et al., 2019). For instance, Whitehead et al. (2019) explain how the World Bank hired the UK BIT to assist the Guatemalan government to use subtle nudges to raise tax efforts in Guatemala. This partnership between the UK BIT and the Guatemalan tax authorities was the “*first with a government in the developing world*” (Whitehead et al., 2019, p. 90). According to Whitehead et al. (2019) the World Bank has increasingly gained interest in how international development could be formed by insights from psychological and behavioral sciences.

At an international level, the World Bank is not alone in utilizing insights from behavioral sciences to shape policies to address issues of different kinds. For instance, in Africa, international organizations, such as USAid, AusAid, Unicef, the World Health Organization, and the United Nations Populations Fund, has played an important role in the spread of behavioral sciences, especially in regard to specific problem areas that “*relate to everyday domestic practices and habits*” (Whitehead et al., 2019, p. 96). In their research, Whitehead et al. (2019) also identified other international organizations, that they divide in two groups, that has played a role in the global spread of behavioral sciences. The first group “*are a series of international NGOs, charities, para-governmental agencies and consultancies, such as the NSMC (National Social Marketing Centre, UK), the WWF, and Change Labs*” (Whitehead et al., 2019, p. 96). They argue that what is interesting here is the marketing consultancies that are now promoting positive behavior change. They further emphasize that this group of organizations have not only encouraged behavior policies to be utilized in local and national governments, “*but they also offer behaviour change expertise that is used to support the programmes of major development agencies*” (Whitehead et al., 2019, p. 96). The second group of organizations is multinational corporations, which are incorporating behavior change insights in their Corporate Social Responsibility (CSR) initiatives. Whitehead et al., (2019) state that even though it is not uncommon for corporations so promote behavior change in their consumers, it is interesting to see that they have been encouraging ‘positive’, ‘sustainable’ behaviors. “*Given the financial power and global reach of these corporations, it is clear that*

they are key drivers within the globalization of the behavioural sciences” (Whitehead et al., 2019, p. 97). Thus, it is interesting to investigate the ethical considerations of the role that these corporations have in shaping public policy.

5.1.3 Policy tool

One of the themes derived from the analysis was nudge as a *policy tool*. Generally, the documents I have reviewed concentrate on the peculiarities of nudging without referring to other policy tools that are relevant for analyzing how environmental policies are designed and applied more generally. Both Evans et al. (2017), Ewert (2020) and White (2019) agree that nudging is a policy tool which address both individual behaviors and has the potential to influence collective and organizational behavior as well. Still, this literature has some initial comments on how nudging as a policy tool contrasts to other steering instruments available for policymakers.

Evans et al. (2017) discuss the contrast between what they name ‘traditional’ policy instruments and nudging. In environmental policy, by traditional policy instruments they refer to three policy toolkits in particular: regulatory, economic, and information. One way to classify these instruments is by the degree of the authoritative force involved. Regulatory instruments are also known as command-and-control instruments, by explicitly formulated rules and directives. Economic instruments are tools based on the market, guided towards what is considered beneficial by the regulator in economic decisions but does not formally restrict an individual’s freedom of choice. Information covers attempt at influencing people through the transfer of knowledge, the communication of reasoned argument, and persuasion. These traditional instruments are common when governments form their environmental policies, but Evans et al. (2017) maintain that increasingly present governments prefer to reduce the advancement of ‘hard’ instruments like regulatory tools and instead base their environmental-friendly strategies on ‘soft’ instruments like market-based economic tools and information. According to Evans et al. (2017) this development towards an approach to steering by soft instruments sees the role of government changing from that of provider and regulator to coordinator and facilitator – what they call a ‘fundamental change’ in the advancement of policy instruments particularly in the USA and Europe (Evans et al., 2017).

Evans et al. (2017) introduce ‘green nudging’ as a soft, non-regulatory extension of the environmental policy toolkit which in contrast to the traditional ones relies on a more nuanced

picture of human behavior found in the behavioral sciences situated at the ‘soft end’ of the toolkit. This is based on two characteristics of nudges as a governance tool: “1) *they do not assume the prevailing economic paradigm of rational choice and 2) they influence behaviour via system 1 processes – as per our technical definition*” (Evans et al., 2017, p. 24). They still underline that governmental policies – including nudging – are often based on a combination of different instruments. The reason that nudging should be preferred is that it is more adequate as environmental problems often are complex, long-term, and with no obvious connection between problems and solutions. Evans et al. (2017, p. 25) also argue that in some cases, “*a good mix of different policy tools can help to address one issue more effectively than anyone used in isolation*”. In order to fully understand the significance of nudging as a policy instrument, they still consider it necessary to analyze how this works in isolation as a toolkit. They argue that “*especially for environmental ends nudging can be a very effective tool*” (Evans et al., 2017, p. 24), as nudging first triggers an intuitive process blocking or exploiting a cognitive bias, which brings a qualitative new approach to political steering.

Bornemann & Burger (2019) also emphasize the soft and subtle approaches of nudges, and that governments only recently have started using nudging in their political steering approaches. They further explain that proponents of nudging argue that nudging “*represents a particularly effective and efficient steering approach*”, especially for addressing sustainability issues (Bornemann & Burger, 2019, p. 209). According to several of the documents I have analyzed nudging is considered to be a cheap(er) policy tool to enact. White (2019, p. 319) argue that the reason that nudges are less costly interventions is because “*they consist largely of changing the arrangement and presentations of options... to take advantage of the cognitive shortcomings identified by psychologists*”. In line with this, Bornemann & Burger (2019) state that nudges are considered cheap as the costs for economic incentives or for executing sanctions are absent. While Ewert (2020, p. 343) argues that the convenience of nudges as “*easy-to-apply alternative*” and that regulations is low-cost “*involves little political risk for policymakers*”. Referring to Jones et al. (2013), Ewert (2020, p. 343) also points to nudges as a way to “*ensure the continuation of ‘neoliberal governmentality’... and by extension, the hegemony of the neoliberal economic model*”. Ewert (2020, p. 343) also maintains that when nudges seem to be effective, “*they reinforce the political capacity to act in neoliberal times*”. However, when nudges fail, policymakers are generally not blamed since nudges are mostly hidden from political evaluation as they are not easily discovered by the public (Ewert, 2020).

A consistent challenge when I have analyzed nudging as a policy tool is that the literature very often discusses behavioral science and nudging without clarifying the relationship between them. This is a central point in Ewert's (2020) research article. One of the aims of his article is to clarify the status and role of Behavioral Public Policy (BPP) as a governance approach and nudge as a policy tool. The empirical study Ewert (2020) performed, rests on interviews with 20 experts from the UK., EU, Australia, and USA, selected by systematic internet research. The research concentrated on the status and role of BPP and nudging, contrasting these concepts by referring to theoretical and practical governance experiences by these academics and practitioners. In the interviews the respondents reflected a somewhat critical attitude towards Thaler & Sunstein's nudge approach as being rhetoric and simplified versions, still resting heavily on, behavioral insights. However, there was agreement that the nudge formula had "*amplified the systematic and rigorous application of behavioural insights into the policy-making process*", but that there is a need for understanding complex behaviors in a wider, and more systematic way than nudging offers (Ewert, 2020, p. 345-346). The interviews concluded that while nudge approaches were oftentimes too simplistic and narrow in their perspectives, BPP still was "*somewhat nebulous and ill-defined so far*" (Ewert, 2020, p. 346). This research seems to underline the difficulties I – and many others – face when discussing nudging as a separate theoretical approach, still heavily intertwined and resting on the broader concept of behavioral public policy.

The backdrop for the way nudges works as a policy tool, as I see it, should be understood in the context of Thaler & Sunstein's (2008) concept of 'libertarian paternalism' as described above (section 2.2). The underlying idea of libertarian paternalism, consisting of the potentially contradicting concepts, will, as I see it, represent an ideological theory when nudging as political tool is introduced. The design of nudging tools must in its turn be based on more specific knowledge of the problems that they address. This implicates that the ideological overtones are challenging in many political contexts, while the nudges as policy tools are not necessarily explicitly connected to these ideological aspects.

However, as a policy tool, nudge has received much criticism. Ewert (2020) gives an overview of the criticisms that the use of nudges has received at both the political and the academic spectrum. One of the criticisms are based on the conceptual basis of nudging. Nudge is here understood as "*an inappropriate method of addressing complex policy problems adequately*" (Ewert, 2020, p. 341). Both Ewert (2020) and Bornemann & Burger (2019) are critical towards whether nudging have the potential to address the more complex, distal, and long-term causes

of social challenges, such as sustainable development. For instance, Bornemann & Burger (2019, p. 215) explain that nudges can be seen “*as a means of reproducing and stabilizing existing consumption practices instead of changing them*”. This is because nudges are not perceived as challenging “*the established business models of the corporate world*”, they are rather seen as maintaining the unsustainable consumption patterns and sustaining the status quo (Bornemann & Burger, 2019, p. 215). According to Ewert (2020) nudges are seen as having a limited range to properly address the scope and scale of social contexts where individual behaviors take place. He further argues that nudges are regarded as technocratic because governments incorporate a one-size-fits-all approach and offer only technocratic adjustments to complex policy problems.

In the new edition of *Nudge* from 2021, Thaler & Sunstein (2021, xii) seem to take these critical comments into considerations and have “*increased the space [they] devote to climate change and the environment*” as well. In chapter 14 – ‘Saving the Planet’ – they discuss the global challenges these issues represent. Here, they claim behavioural economics can help by explaining why not more has been achieved in this field, referring to the well-known concept of the ‘tragedy of the commons’. However, the chapter is explicitly saying that hopes of finding low-cost nudges that will make these problems going away “*you will be disappointed*” (Thaler & Sunstein, 2021, p. 286). They still insist that nudges will help, and that climate change should be considered as a “*global choice architecture problem*” (Thaler & Sunstein, p. 286). While referring rather extensively to the theories of the tragedy of the commons, their discussion of strategies to mitigate environmental problems is, as I see it, rather general, vague, and limited, particularly to specific ‘green’ issues (green taxes and cap-and-trade system). Interestingly, they also point at the need for regulatory mandates – which they think is a good approach to environmental problems – “*much better than economists have long thought*” (Thaler & Sunstein, 2021, p. 299). In strategies to mitigate environmental problems, the choice of governmental tools should be pragmatic. They suggest nudging should be considered as only one strategy, as the severity of the environmental problems should be approached by “*all tools on deck*” when it comes to climate change (Thaler & Sunstein, 2021, p. 301). It also implicates that one must be pragmatic, as “*better is good*” (Thaler & Sunstein, 2021, p. 301). Still, they advise that there is an obvious nudge that all countries should adopt to help deal with climate change: by creating a greenhouse gas inventory. They conclude the chapter on environmental problems and climate change by saying that incentives can come in many forms, “*but better*

choice architecture, and a lot of nudges, can also play an important role” (Thaler & Sunstein, 2021, p. 308).

5.1.4 Who has legitimacy to design nudging strategies?

The discussion on *authority* refer to the research question: who has legitimacy to design nudging strategies? Referring to the theoretical framework by Eriksen et al. (2015b), as described in theoretical chapter (3), authority is regarded as having the potential for different actors to further their interests. This question is at the heart of controversies regarding nudge as a political power issue. Thaler & Sunstein’s nudging theory is formulated as an all-encompassing approach to behavioral change. It is not limited to public policy, but it is applied in all fractions of society. This implicates that policy strategies involving nudging are not separated from e.g., private actors or businesses, and has been directed towards micro-decisions (where to place specific items in the shop in order to stimulate consumption) and governmental macro-politics (nudge units). Accordingly, legitimacy for nudge strategies is distributed to potentially any actor, however, public authorities will have to be concerned about which policy areas are targeted and how choice architectures are designed.

I found that nudging sometimes was presented as an integrated part of behavioral public policy (BPP) and in literature that I reviewed there were blurred, or unclear, boundaries between a general presentation of BPP and the more specific characteristics of nudge policies. Thus, some of the literature described a comprehensive *global spread* of behavioral policies, which must be limited to a less comprehensive number when a strict definition of nudge policies is used. The main findings about how nudging is resting on *formal organizations*, are the governmental initiatives to establishing ‘nudge units’ in UK and the USA, later in some other countries. These initiatives seem to be directly connected to governments being convinced by the ideas in the *Nudge* book by Thaler & Sunstein (2008). Later, similar units were established in a few other countries, while the UK and US units either advised or serviced these units. The governmental initiatives reflect that nudge policies were mostly a western phenomenon, particularly initiated by actors in Anglo-American countries. However, there was a number of examples of individual countries in both Latin-America, Africa, and Asia where nudge policies have been introduced. It also seemed like specific policy areas were targeted by nudge policies, including issues regarding environmental and climate change policies. In these policy areas, however, nudge

policies appear to be limited to policies directed towards individual behavior in taxation and health policies.

In the data regarding nudging as a *policy tool*, most of the literature I studied did not discuss the wider context of nudging related to alternative steering tools governments might use to influence policy areas. In this context, nudging must be regarded as a soft steering strategy, being based on indirect and informational influence of individual decisions taken by those defined as ‘nudges’. In some of the literature – where nudge tools are related to other governmental steering instruments, nudging as a policy strategy is considered as part of the ‘new governance’ ideas being increasingly implemented in western countries. This also reflects the ‘hidden power’ of designing choice architecture that should be seen as a top-down soft strategy.

5.2 Knowledge

In this section I will discuss the findings related to the question: *Which knowledge base is applied when choice architecture is designed (‘knowledge’)?* Derived from the findings and the research questions, related themes are *choice architecture* and *evidence-based science/knowledge*. This research question is based on Eriksen et al.’s (2015b) concept of knowledge.

Authority is also closely related to knowledge; institutions and organizations can acknowledge and shape which knowledges are relevant “and considered authoritative and of universal relevance” to respond to climate change, e.g., the creation of United Nations Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC) (Eriksen, et al., 2015b, p. 528). This is also closely related to the contestation of the term sustainable development and how discourses shape understandings and efforts to i.e., responses to climate change (Leichenko & O’Brien, 2019; Kagan & Burton, 2017; Persson et al., 2018). Knowledge and authority are immensely intertwined and embedded in each other, because what type of knowledge – whether it be natural science, social science, or other types of knowledges – is applied to the context of i.e., climate change adaptation efforts is both shaped and legitimized by authority, but knowledge can also shape who has authority and the politics of adaptation efforts. By, for instance, conceptualizing climate change as an universal problem and adaptation efforts are shaped thereafter, other types of knowledges and understandings, and how they are created are often neglected. As such, this dual relationship will shape an

understanding of “who is considered to need adaptation and who has the knowledge to promote adaptive efforts” (Eriksen et al., 2015b, p. 528).

5.2.1 Choice architecture

Bornman & Burger (2019) distinguish between nudges and informational interventions. They state that it does not appear to be a clear separation between nudges and information in Thaler & Sunstein’s work, while other authors and practitioners request a more explicit distinction between the so called “*‘classical’ informational steering approaches addressing the conscious mind, and more subconscious nudges*” (Bornemann & Burger, 2019, p. 210). In their chapter, they consider nudges that address and use “*certain factors in the choice architecture of individuals that prevent people from acting rationally*” (Bornemann & Burger, 2019, p. 210-211).

There is a consensus among the authors in the literature I have analyzed that the choice architecture is closely related to insights from behavioral economy and psychology that people behave in non-rational ways. While Bornemann & Burger (2019) and Evans (2017) are the only ones who explicitly state that how the choice architecture are developed are associated with system-1-thinking. Bornemann & Burger (2019, p. 211) argue that nudges are concerned with working with the components that the choice architecture are based on, such as biases, heuristics, and emotions, “*by actively triggering, suppressing or overcoming them*”. Whitehead et al. (2019, p. 91) state that the idea behind altering choice architecture is because it can be easier for people to embrace “*behaviours that are in their own best interests*”. While Borneman & Burger (2019, p. 215) explain that proponents of nudging argue that since every decision individuals take are taking place in some choice architecture, that “*there are supposedly good reasons to nudge these choices in the directions of commonly accepted ‘better’ ends, such as sustainability*”. This is closely related to libertarian paternalism, where the libertarian aspect is ensuring that people are not forced into making decisions, while the paternalistic aspect lies in the presumption that ‘choice architects’ could design the choice architecture which they think are people’s preferred preferences or their best interests (Bornemann & Burger, 2019). According to Dan Brock (1988) in White (2019, p. 322) “paternalistic interference involves the claim of one person to know better what is good for another person than that other person him- or herself does”. White (2019, p. 327) further argue that policymakers are not able to know what a person’s true interests are (or not are), and that it is not enough to justify “*blanket*

government intrusion into choices” based on that sometimes individuals take bad choices. In line with Bornemann & Burger (2019), White (2019, p. 325) also state that proponents argue that choice architecture’s effects on decision-making are inevitable, *“it would be irresponsible not to arrange options in a way that makes people better off”*. However, White (2019, p. 325) emphasizes that the interventions and values the government influences in the presentation of the choices *“need not be paternalistic or welfarist ones”*.

Thaler & Sunstein’s approach to nudging implicates that the key to understand how nudging is designed, is how the choice architecture is structured. Choice architecture signify the context in which a decision is made as designed by ‘choice architects’ (Evans et al., 2017). Nudging can thus be understood as *“the intentional framing of a choice by a political or private actor”* (Evans et al., 2017, p.12). Evans et al. (2017) focus particularly on ‘priming nudges’, which expose the individual to some stimulus before any choice is presented. They are, however, critical to what they term a too simplistic, ‘technical’ definition of a nudge as presented by Thaler & Sunstein – where nudging is ‘everywhere’ by either conscious or unconscious architecture designs. Evans et al. (2017, p. 13) argue that they consider nudges that are intentional, as *“assuming agency on behalf of the policymaker is a precondition for evaluating nudging as a political instrument”*. In accordance with this, nudging is discussed as a policy to induce ecologically friendly behavior, and choice architecture is the key to understand nudging as a policy strategy. In their report, Evans et al. (2017) elaborate on this by considering nudging as a possible addition to the environmental toolkit, *“better suited to address the bounded rationality of human nature than the conventional policy toolkit”* (Evans et al., 2017, p. 17). By considering nudging in this context choice architecture becomes a vital – maybe the most important – concept to understand how nudging policies are performed by ‘green nudges’.

Bornemann & Burger (2019) explore the potential that nudges have for addressing sustainability issues. They do this by looking at the tensions and critical issues that emerges when examining nudging from a sustainability perspective. The three sustainability perspectives that they base their analysis on are: justice-based, resilience-based, and procedural sustainability. Justice-based sustainable development entails *“conceptions that are explicitly based on ethical/moral investments”* and intrinsically incorporates an idea of *“achieving wellbeing for all living and future generations”* (Bornemann & Burger, 2019, p. 216-217). Resilience-based sustainability are based on the how well the maintenance of the ecosystems at global, regional, and local level are executed. While the procedural conceptualization of sustainability incorporates an understanding *“of ‘sustainability’ in terms of a moving target and*

essentially a political concept, whose meaning is to be defined (and constantly re-defined) in societal discourse” (Bornemann & Burger, 2019, p. 217). Bornemann & Burger (2019, p. 217) argue that there is *“not a straightforward relationship between nudging and sustainability”*, some nudges can be a well-suited approach to different conceptions of sustainability issues, but different conceptualizations of sustainability can also critically point out different problematic nudge-issues. As I see it, how the choice architecture and ultimately the nudge is developed has to be understood in how the target area is understood and defined – and this is where framings and discourses plays important roles.

Following this approach, two questions regarding choice architecture follows: Firstly, which knowledge(s) are advanced when nudging policies are being introduced in specific fields of environmental problems? Secondly, how and to which extent does nudging strategies contribute in relation to other policy instruments? Here, I concentrate on the first question, and will return to the second in the final discussion of the thesis.

Incorporating nudge theory into policymaking is *“no straightforward task”* (Mosely & Stoker in Evans et al., 2017, p. 17). Evans et al. (2017) introduce a typology of green nudges in order to present a more nuanced view of nudging as a policy instrument – which in their report lays the ground for a discussion of their main research question: whether nudges should be used as a means to pursue environmental ends. The typology they present is based on the assumption that environmental problems are highly complex, have long-time frames, and that cause-consequence relations are vague. They maintain that human psychology and bounded rationality hinder ecological behavior by *“passive choice, complexity, limited personal experience, third-part marketing and inter-temporal choice”* (Evans et al., 2017, p.19). When pushed too far, efforts to change behavior tend to fail due to psychological barriers. Designing choice architecture that change behavior in accordance with political intentions accordingly must find the balance between those factors that promote ecologically friendly choices and those that create counter-reactions among those being the objectives of nudging strategies. The premise for designing nudges is thus the knowledge considerations taken by choice architects preferably based on scientific knowledge, and – according to Thaler & Sunstein – evidence-based scientific knowledge (e.g., the model of RCTs). This leads me to the next theme, discussed below.

5.2.2 Evidence-based science/knowledge

The presumption behind nudge as a policy tool is that it should be based on scientific knowledge, preferably evidence-based science, about how individuals behave and why they behave the way they do, but also about “*the systematic rationality gaps in the behaviour of individuals*” (Bornemann & Burger, 2019, p. 211). According to Ewert (2020) proponents argue that this should be done by gathering evidence through scientific experiments, preferably based on randomized control trials (RCTs). Thaler & Sunstein (2021) in their introduction point to an increasing number of research on choice architecture, based on RCTs.

According to Evans et al. (2017) the standard for testing the efficacy and effectiveness of policy instruments, such as nudging, are usually done in lab settings based on RCTs. This is because it “*offers a much more valid and robust standard of evidence than any other method policymakers have available*” (John et al., 2013, p. 28 in Evans et al., 2017, p. 33). Usually this is done by randomly selecting a sample group and testing the effects of a new policy tool on this group. Evans et al. (2017) describe RCTs as the ‘gold standard’ of scientific research and is based on the idea that it is possible to isolate the effects of specific variables when interventions in behavioral choices are made.

As previously mentioned, Bornemann & Burger (2019) looks at the relationship between nudging and sustainability. They state that this link has been discussed and explained by many, including Cass Sunstein himself. Contributions from these scholars have resulted in examples of ‘green nudges’ – which “*might successfully shape individual’s behaviour patterns towards more sustainable ones*” (Bornemann & Burger, 2019, p. 213). Especially in the field of (western) consumption patterns nudging is seen as “*a promising new approach to sustainabilize individual consumption*” (Bornemann & Burger, 2019, p. 213). Many related target areas have been researched, such as household energy use, personal transport, shopping behavior, food consumption, travel/tourism, recycling behavior or waste production. To see how different types of nudges (e.g., defaults, ordering patterns, and social norms) work and to find out the effectiveness and efficiency of them when applied to these different problem areas, empirical research was applied, “*mainly in small-scale lab and field experiments*” (Bornemann & Burger, 2019, p. 213). Using these kinds of empirical research to find out what types of nudges are best suited for different target areas and how effective they are, underscore the importance of context for both the ones who are implementing a nudge (nudger) and the ones subjected to the nudge (nudgee). For instance, what are the available resources that a nudger has and the implications of the social and cultural environments that the nudgee is part of. This “implies a limited

generalizability of the evidence regarding particular nudge designs” (Bornemann & Burger, 2019, p. 214).

This limited method behind the nudge is also emphasized by Ewert (2020). He argues that the evidence-based approach, predominantly based on RCT-experiments seems to be based on positivist science (evidence) and incorporate an “*methodological monism*” that is insufficient in addressing “*the deeper causes of policy problems*” and “*the diversity of people’s life-worlds*” (Ewert, 2020, p. 341). While White (2019) argue that even though choices can be observed, there is no way of knowing people’s true interest. This is because behaviors and choices “depend on personal experiences and social and cultural factors that cannot be standardized” in scientific experiments that the nudge theory relies on (Ewert, 2020, p. 341). Thus, nudges are designed in a way that the policy maker’s own understanding of the individuals’ interests is imposed – in other words, we end up with a “technocracy of experts” (Gerd Gegerenzer, 2015, p. 366 in White, 2019, p. 322).

White (2019) is not alone in regarding scientific knowledge in nudge policies in this way. Ewert (2020) and Bornemann & Burger (2019) also take this strand of criticism under review. Ewert (2020, p. 341) criticize nudge policies for being technocratic and elitist, “*that draws exclusively on scientifically gathered behavioural evidence and expertise but marginalises lay knowledge and everyday wisdom*”. While Bornemann & Burger (2019, p. 220) argue that relying fully on scientific knowledge and evidence for political steering seems problematic, as “*there are good reasons that political steering of whatever kind inevitably involves normative issues*”. They further argue that issues regarding sustainability are characterized as having complex ethical and value problems that cannot be reduced to scientific evidence.

This emphasis on scientific expertise contradicts the call for a broader participation of actors (i.e., stakeholders, citizens, or local communities) that contribute to the inclusion of different knowledges, values, and interests in sustainability research and policy (Bornemann & Burger, 2019). Ewert (2020) emphasize that it is important that BPP (behavioral public policy) must be based on “a whole range of scientific disciplines and methods”. As I see it, this is in accordance with the pragmatic approach to nudge knowledge in Thaler and Sunstein (2021).

5.2.3 Which knowledge base is applied when choice architecture is designed?

When analyzing the selected literature, I found that the two themes that I identified – choice architecture and evidence-based knowledge/science – were given much space and relevant for studying the knowledge base of nudging. The themes are intertwined and are characteristics of nudge theories. The issues about the concealed nature of nudging were more explicitly being studied in relation to the concept of *knowledge*. In this section, the argument is that power is expressed by knowledge, and knowledge expresses power.

Choice architecture, which is the construction of nudges in their practical use, must be considered as the main characteristic of a nudge, and an integral part of the idea of ‘paternal libertarianism’. Choice architecture plays a more significant role than the prevalence of evidence-based knowledge, which to me at least appears to be an ideal for knowledge-based policies, still not a necessary prerequisite. In the literature, it seems that choice architecture is a generic concept, in the sense that anyone can apply their knowledge on how to direct the choices of ‘nudgees’ so that the ‘correct’ choices are made. *Evidence-based (scientific) knowledge* is an ideal which reflects the tendency to apply positivist methods, which natural sciences (and medicine in particular) often are based on. Here, the ideal is randomized control trials (RCTs), which claims that the effects on the phenomena that are studied can be measured and isolated from the broader social context, like in a laboratory. Consequently, a more comprehensive understanding of factors at play in social settings are not easily taken into consideration. In the literature I studied there was an ambiguous approach to these knowledge issues. The tendency to criticize both the concealed power of choice architects and the scientific traditions promoted by evidence-based policies were however mentioned in all the articles I studied. In their book, Thaler & Sunstein (both the 2008 and 2021 version) present choice architecture and evidence-based scientific knowledge as important elements of their theory. However, in the chapter on *Saving the Planet* in the 2021 version, they discuss climate change and environmental policies on a broader, more pragmatic basis. Here, it seems like the two ‘creators’ of nudge theory see the limits of nudging as a replacement of other governmental steering tools. Applying evidence-based knowledge and designing choice architectures can easily lead to marginalization of other types of knowledges and give limited space for different actors to participate in decision-making processes. This leads to the next section, discussing *subjectivities*.

5.3 Subjectivities

Here, the findings related to the third sub-questions will be discussed: *What are challenges for different target groups when nudge strategies are introduced ('subjectivities')?* Themes discovered when analyzing the data were *target groups* and *ethics*. The research question and the themes are based on the third concept derived from Eriksen et al.'s (2015b) theorization of the politics of adaptation – subjectivities.

The concept of subjectivities gives an understanding of how power is embedded (and exercised) in social relations and can create individual involvement of different kinds. Mainstream discourses, hegemonic practices, and cultural codes can create different subjects that is exposed to power of different kinds. These relations can “serve to shape how they are identified by society, often manifesting in inequalities based upon gender, class, race, as well as other categories of social difference like disability or geographical location” (Eriksen et al., 2015b, p. 528). However, the concept of subjectivities also gives an understanding of how individuals can ‘push back’, resist, and re-express practices and discourses, ultimately individual agency is created. As such, being subjected and accepting domination is a contradictory process; on the one side, if one believes that one is i.e., vulnerable, it is easier to accept the exercise of power and domination; but if one rejects the power and domination, new and more liberating subjectivities can emerge and create resistance to the mainstream, dominant understandings of i.e., vulnerability. In relation to authority and knowledge, subjectivities can then create space for other people and institutions to have authorization and other types of knowledges may be created and/or given space.

5.3.1 Target groups

The first theme relating to subjectivities, and directly from the research question, was *target groups*. The literature I analyzed did not directly mention any specific target groups for nudges in regard to climate change adaptation. There are neither no references to surveys of the experiences by target groups/nudgees of being nudged.

However, Borneman & Burger (2019, p. 212) argue that apart from looking at how nudges work it is relevant to ask “*who the supposed beneficiary of nudging is*”. They distinguish between two types of nudges: pro-self-nudges and social welfarist nudges. Pro-self-nudges are nudges that are meant to steer behavior towards an increase in “*individual's personal utility*” (Bornemann & Burger, 2019, p. 212). Examples of this are nudges promoting healthier eating

patterns or cigarette packages having deterring pictures. While the social welfarist nudges are “*directed at enhancing societal welfare and realizing some form of public good*”, such as having an opt-out system of organ donation or nudges for sustainability (Bornemann & Burger, 2019, p. 212).

One of the main arguments for using nudging as a steering approach towards sustainability is that it addresses the ‘attitude-behavior’ gap, which entails that even though people might have the attitudes, knowledges, and values oriented towards sustainability, it is not so easy to change their behavior accordingly. This is where nudges are supposedly able to “*‘crack’ routinized behaviour patterns and induce behavioural change in situations where people otherwise are not able to change their behaviour*” (Bornemann & Burger, 2019, p. 214). As such, nudges enable people to increase both their own benefits and societal welfare. Nudging is also seen as a tool that can target those people that do not care for sustainability and/or have been resistant towards other types of tools that try to raise their awareness regarding sustainability issues (Bornemann & Burger, 2019). However, critics of this argue that nudging then promotes an ‘individualization’ regarding the governance of consumerism and as such “*represents a specific strategy of subjectivation of responsibility*” (Bornemann & Burger, 2019, p. 215). According to Bornemann & Burger (2019, p. 215) nudging exclusively address individual’s responsibility regarding sustainability issues, “*rather than problematizing and addressing structural conditions of unsustainable consumerism, such as infrastructures, collective norms and values, or power relations*”.

5.3.2 Ethics

Ewert (2020, p. 342) maintains that “*there is fierce debate about the ethics and the political morality of nudges*”. Both Whitehead et al. (2019), Ewert (2020), White (2019), and Bornemann & Burger (2019) are particularly concerned with the consequences of nudging policies in regard to individual autonomy. In their paper, Evans et al. (2017, abstract) state that they focus on “*the commonly neglected dimension of ethics*” in nudging policies. In essence, nudges are perceived as ethically problematic because modified choice architectures systematically override people’s own interests. Still, in the literature I have selected, ethical issues relating to the nudge theory and practices are given many concerns. Generally, in their considerations about this, nudge theories are being approached in a critical manner, referring to the concealed power choice architects have in nudge designs. In their report, Evans et al. (2017)

present a more ambiguous point of view on this. In one chapter, they focus on three ethical aspects. The first one is ‘autonomy’ – whether, and to which extent, green social norm nudges require the scrutiny of external influences, and if these influences distort the person’s ability to make decisions based on his/her own reasons and motives. Evans et al. (2017) refer to those (relatively few) authors who have addressed this problem and see that on this matter there is disagreement among those working on nudge theories and practice. One argument is that personal autonomy is not reduced since the “*content of the information and the behavioural tool is obvious and transparent*” – thus the autonomy of people is respected (Hacker, 2016 in Evans et al., 2017, p. 62). This is the case when more information on products or services are presented to the public. It is also argued that since “*social norm engineering operates through practical reasoning, autonomy is not infringed*” (Nagatsu, 2015 in Evans et al., 2017, p. 63). However, in line with Nagatsu, Evans et al. (2017) conclude that a frameshift which increase group-oriented behavior does not respect their autonomy.

The second aspect Evans et al. (2017) focus on, is ‘manipulation and transparency’. Here they differ between different kinds of nudges. By separating between different forms of nudging – between social norm nudges and default nudges – they maintain that green social norm nudges should be generally considered as transparent nudges, influencing actions, the results of deliberation judgment and choice. Referring to Hansen & Jespersen (2013) they say a transparent nudging strategy implicates that “*it is easy for citizens to reconstruct the intentions and means by which behaviour change is pursued*” (Hansen & Jespersen, 2013, p. 20 in Evans et al., 2017, p. 63). This is, as I see it, based on the premise that citizens are well informed and have the resources to make the ‘correct’ decisions when choices are done.

The third aspect Evans et al. (2017) focus on, is ‘proportionality’ – which, as I understand it, refers to the questions regarding choosing nudge strategies – particularly green social norm nudges – in favor of other steering strategies to obtain environmental goals. Here, one asks whether nudging is a suitable measure, both taking the expected advantages of nudge measures and the potential undesired effects. Evans et al. (2017) maintain that the potentially undesired effects of nudging in environmental policies is the largest ethical problem – weighting public interests against personal preferences. They still conclude that “*there are few circumstances under which ethical criticisms prohibit the use of a green social norm nudge*” (Evans et al., 2017, p. 65). In their discussion they emphasize that ethics relating to nudges is a complex and controversial issue. As I understand it, they argue different kinds of nudges will have negative

or positive consequences for citizens' autonomy and on nudges' degree of manipulation or transparency (Evans et al., 2017).

The other articles I have studied are much more critical when it comes to ethical considerations of nudging. This is primarily due to the design of choice architecture and the (hidden) role of the choice architects. Ewert (2020) argue that nudges are a top-down approach to influencing individual behavior as they are conceived and designed by choice architects while e.g., other citizens have little influence on the content and design of nudges. In line with this, Bornemann & Burger (2019, p. 209) point to the "*manipulative potential and fundamental question*" of governmental nudging, referring to the challenges nudging represents towards values of individual autonomy and freedom. White (2019, p. 319) is critical as well, being concerned about the definition of "*true interests*" in the nudge designs, and that nudge policymakers do not have sufficient knowledge about the interests they intend to promote. He argues that "*by necessity, then, policy-makers impose their own conception of people's interests when designing nudges*", thus steering individuals towards those interests chosen for them by these policymakers (White, 2019, p. 322-223). White (2019, p. 324) also argues that by this, nudge policymakers violate fundamental principles of western democracies of liberal neutrality, saying that a choice that is manipulated cannot be a free choice and is a violation of basic autonomy, and as such being "*alarmingly intrusive*".

In sum, the arguments about ethical issues regarding nudge policies refer to the asymmetric distribution of power as choice architecture is concealed in the hands of the choice architects and nudge policymakers, threatening the autonomy and individual freedom, self-governance, and dignity of those being exposed to these policies. As Whitehead et al. (2019, p. 99) argue, nudging is contradicting the ideas of "*empowerment*" which is considered as an alternative way to steer peoples' actions in accordance with their interests.

5.3.3 What are challenges for different target groups when nudge strategies are introduced?

The third section of my literature study focus on *subjectivities*, which relate to how power is embedded and exercised in social relations and can create individual involvement of different kinds. Here, how the 'receivers' of policies – like nudging strategies – experience their life situations, and how peculiarities of the nudge policy will affect their social power are addressed. By studying this, I found that two themes addressed these questions: *target groups* – who are

exposed to and expected influenced by nudging, and *ethics* – how nudging is designed in ways that potentially strengthen or weaken the power/influence of those being defined as ‘nudgees’.

In the literature I studied, nudging was discussed mainly as a generic phenomenon, meaning that specific *targets groups* were mentioned only occasionally. This literature did neither mention e.g., surveys where experiences of those being targets of specific nudges are studied. This, of course, I consider to be among the problems with my selection of the literature for this study. In those articles I selected, there were several arguments that consequences for target groups should be divided between different kinds of nudges (e.g., ‘pro-self-nudges’ and ‘social welfarist nudges’) – which potentially will have different consequences for target groups, expressed as theoretical and non-empirical arguments. I did not identify any arguments about social or political biases in the literature I studied, though in the former section there were several critical comments on the tendency to expose western values like consumerism and liberal democracy. These are arguments that are particularly related to the next theme I studied on subjectivities: subjectivism and individualization of target groups implicit in the choice architecture of nudging.

My findings on *ethical* issues should be considered in the light of what several of the authors point at as a relatively neglected subject in the nudge literature. In the literature I selected, this was however an important theme. Also, ethics relating to nudging is said to be a complex and controversial issue. While one of the articles discussed this theme to some extent, arguing that there were several positive ethical implications as nudging will promote the ‘right’ choices being made by the nudgees, while on the other side the concealed and hidden power of choice architects represent a severe ethical problem. This argument is being shared and strengthened by the other authors. Here, nudges are considered to be a way to manipulate people into decisions that they do not know the premises for, thus representing a severe threat to democratic governance by an informed population. Still, there also were arguments that in environmental policies, to nudge people into environmental choices would be for the best, given the gravity of the problems addressed.

5.4 Discussion: Nudge as a climate change adaptation strategy

In this section, I will discuss the findings from the three sub-questions (presented above) and answer the main research question: *What are the challenges with using nudging as a strategy for climate change adaptation?* I have reviewed the selected literature using the three concepts,

authority, knowledge, and subjectivities. Mainly, this literature identifies similar issues related to nudging, although there are some variations and nuances between the authors when it comes to which challenges they emphasize. I have synthesized my findings based on the theoretical perspectives presented in chapter 3 and have identified the challenges related to nudge as climate change adaptation strategies at two levels – *individual and systemic level*. I will, however, emphasize that these levels are primarily a way to separate the identification of challenges in this respect, but both theoretically and in my findings they are strongly intertwined.

Referring to the three strategies that Leichenko & O'Brien (2019) divide adaptation into – technical, managerial, and behavioral, – nudge as an adaptation strategy can in principle take place through combinations of these three approaches. However, in the literature that I have reviewed, it is primarily managerial and behavioral aspects that have been discussed. The theoretical framework I presented in the theory chapter has a natural trajectory: where the mainstream adaptation and climate change discourse are presented, how vulnerabilities can be reinforced, redistributed, and/or created in relation to how adaptation efforts are shaped, and that the underlying political and social structures needs to be addressed and understood in adaptation strategies. The reason that the model by Eriksen et al. (2015b) was applied in this thesis, is because, in my opinion, it gives a holistic theoretical conceptualization of how to investigate and understand how power structures shape adaptation strategies, both at the local level and at a global scale. This way, the mainstream ‘development as usual’ paradigm that adaptation efforts often are placed within can be challenged.

Adaptation efforts are closely related to climate change *discourses*, meaning that how adaptation takes form is based on how climate change is framed. Climate change has mainly been seen as an environmental problem, and solutions have often been shaped thereafter (Leichenko & O'Brien, 2019). It is important to consider the close relationship that adaptation and development has; where often adaptation strategies are placed into development policies and projects that already exist (Eriksen et al., 2015a). Here, it is also important to acknowledge that the institutional structure of adaptation strategies (and development projects) is often based on the neoliberalist and capitalist understanding of economic growth, and as such can maintain the ‘development as usual’ paradigm (Eriksen et al., 2015a; Bond & Barth, 2020).

The linkages between climate change and *vulnerabilities* are not as straightforward as it might seem. Within the mainstream development paradigm, climate change has often been seen as

something that can cause or exacerbate vulnerabilities. But this does not take into consideration the social and political factors that also take part in creating vulnerabilities (Eriksen et al., 2015a). These factors are important to investigate and challenge as adaptation efforts might not address these underlying issues that create vulnerabilities, but instead can reinforce, redistribute, or create new types of vulnerabilities in different ways (Eriksen et al., 2021).

The politics of adaptation entails that adaptation needs to be seen as a socio-political process, where power structures are very much embedded in understandings of and responses to climate change. The underlying social and political structures that shape vulnerability needs to be addressed but recognizing that adaptation at a practical level is also shaped by these power structures. Here, the conceptualization of authority, knowledge, and subjectivities can be applied to understand the power structures are embedded in everyday practices – both at local and global level – and how climate change and responses are shaped.

Climate change is one of the greatest challenges for the world today. Addressing climate change issues requires comprehensive and strong measures. There is an abundance of strategies and initiatives that are addressing this challenge. Nudging has been introduced as one of these options to address climate change. However, nudging is a generic theory that can be applied to change behavioral actions in different problem areas, not exclusively to climate change. When I analyzed nudging as a climate change adaptation strategy I realized that nudging is a complex and ambiguous approach in this regard – with problematic power structures.

There are several challenges with nudge that have serious implications at both individual and systemic level. However, I find the feature of choice architecture most important for this discussion, as it is at the core of nudging. Choice architecture is based on someone ‘designing’ the environment where people make decisions. As such, the ‘designer’ (choice architects) will have immense power both in how the problem area and climate change is framed, but also ultimately who the target groups are. Here, both the global spread, nudge as a policy tool, the knowledge base, and ethical considerations represent important challenges often mentioned in the literature I studied. As nudges are ideally based on evidence-based (positivist) science, the method behind nudges is considered having limited and technocratic features, which is in line with some of the literature that I have studied (i.e., Ewert, 2020; Bornemann & Burger, 2019; White, 2019). It is limited because other types of understandings, knowledges, interests – and ultimately the inclusion of people and other methods – that have different takes on climate change are not included. Thus, this method has severe challenges when addressing more

complex structural problems. It is technocratic, as it highlights (natural) science and evidence-based experiments, most often in western contexts. In line with Chakrabarty & Sherpa's (2021, p. 2) criticism of different biases in the IPCC, I would argue that the nudge approach to climate change adaptation also consists of some of these different biases: "a geographical bias favoring experts from the global north, ... a disciplinary bias in favor of the natural sciences over the social sciences and humanities, and a cosmological bias favoring western science over indigenous knowledges". Thus, there is a problem that nudge as an adaptation strategy can potentially be placed in the mainstream development 'as usual' paradigm.

The ethical considerations of the choice architecture are based on the fact that nudges work covertly and are considered manipulative. According to several of the authors of the literature I studied (especially Bornemann & Burger, 2019), nudges address individuals' own responsibility in regard to sustainability issues. Bornemann & Burger (2019, p. 219) also argue that the use of covert nudges "risks the ability of a society to deliberate and learn". Especially in relation to sustainable development, individuals, organizations, and society as a whole will need to – and can greatly benefit from – learn from and accommodate different interests, values, and knowledges to be able to adapt to complex societal issues, i.e., climate change, in robust and sustainable ways (Bornemann & Burger, 2019). Understanding the power structures behind this and the covert way that nudges work, can have consequences for how subjectivities can actively emerge and contest to how adaptation processes and understandings of vulnerabilities are shaped by the existing (mainstream) development agenda.

Applying the concepts of *authority*, *knowledge*, and *subjectivities* in my research on nudges as climate change adaptation strategies, have given me insights into how nudges work, the power structures behind nudges, and the implications of nudges both at individual level and systemic level. Nudge is undoubtedly a western concept, which can be understood as maintaining the unsustainable and the hegemony of the neoliberalist and capitalist model of growth.

At individual level I find that the literature referring to ethics are particularly relevant. Here, the main challenge is that nudging, based on the design of the choice architecture, implicates that for those that are exposed to nudge initiatives, nudges are 'hidden' and as such appear as 'manipulative' opposed to ideals of empowerment and democratic decisions. In addition, how nudge theory as presented by Thaler & Sunstein (2008; 2021) is fundamentally western in the examples of how nudges work they give in their two editions of the *Nudge* book. The ethical

challenges discussed in the literature I studied are defined as a serious problem for these reasons.

At systemic level nudge strategies are discussed in my thesis as a governmental steering instrument, which is considered as a ‘soft’ tool within the frames of behavioral public policy. In my analysis, I found that nudge strategies are seen as examples of change in governance policies more generally. One challenge here, is that nudge as a public policy strategy is not able to adequately address the seriousness of climate change problems. In my opinion, I think it is necessary to understand nudge as a modest contribution to adapt to these problems.

6. Conclusion

The overarching goal of this thesis was to gain insight into the challenges with using nudge as a climate change adaptation strategy. More precisely, to critically analyze the power structures in different characteristics of nudging shape how nudges are designed, by whom, which knowledge base is applied, who the receivers are, and implications that can arise from this. To examine this, a document analysis of six documents that address nudge theory and practice was performed, both addressing strengths and weaknesses of nudge characteristics at a more generic level, but also more specifically related to climate change and sustainability issues. This was analyzed in relation to several theoretical concepts relating to climate change discourses and climate change adaptation, but also more generally to knowledge-power theories (i.e., Foucault). Addressing adaptation as a socio-political process was important in order to study the power structures that can shape the design of nudges. Especially, Eriksen et al.'s (2015b) theorization of the politics of adaptation was applied in this thesis, where I analyzed the data in accordance with the three concepts they introduced – authority, knowledge, and subjectivities.

Relating to *authority*, the findings showed that nudge is a complex and ambiguous phenomenon, both theoretically and empirically. This is illustrated by the sometimes unclear boundaries between behavioral policies in general and the more specific nudge strategies. In line with this, a number of actors, both private and governmental, have taken initiatives to advance the ideas of nudging. There is a wide spread of behavioral and nudge policies globally. Still, nudge policies are predominantly prevalent in western and English-speaking countries and has been spread to other parts of the world through different formal organizations. Amongst these, nudge ‘units’ established by the governments of the UK and the US are the most significant, but different international development and aid organizations also play an important role. In several countries, nudge appears as a government tool. In the literature I studied there are few references to the combination of different governmental steering instruments where nudging is related to these. My findings emphasize that nudge should be considered as a soft governmental steering tool to change behavior, and must be combined with other stronger, more regulatory instruments.

The findings on *knowledge* are particularly related to the design of choice architecture inherent in nudge theory and practice. Here, the ideal knowledge base is evidence-based science, e.g., randomized control trials (RCT). By that, nudge appear to be a positivist approach to behavioral change, giving the choice architects extensive power to design the environments that

individuals make decisions in. The authors of the literature I studied, tended to criticize the limited methods embedded in this knowledge base for not considering larger socio-political contexts.

Regarding *subjectivities*, I found that specific target groups were mentioned only occasionally but was mainly discussed generically. However, the need for separating between different kinds of nudges, which potentially can have different consequences for different target groups, were pointed out. In the documents I analyzed, there were substantial ethical criticisms on the way nudges work. This was related to the concealed/hidden and potentially manipulative features of nudges embedded in choice architecture design. Some even mentioned that the ethical issues represent a severe democratic problem due to nudging being contradictory to empowerment and participation by individuals.

My main research question was *what are challenges with using nudging as a strategy for climate change adaptation?* Based on the findings from the three sub-questions, I found that the challenges of using nudge as a climate change adaptation strategy appear at two levels – individual and systemic. On the individual level, particularly ethical issues are considered to be most prominent. On the systemic level, nudge strategies are discussed as a soft governmental policy tool, considered as an inadequate or a modest contribution to address the complexity and seriousness of climate change problems.

This study, based on qualitative document analysis, can offer new insights in using nudge as an adaptation strategy. Despite the limited scope and generalizability of this study, I consider this study to have value for further research on nudge as a climate change adaptation strategy. Obviously, more comprehensive research designs are needed to obtain more knowledge on the issues I have analyzed here. I would like to suggest two options for research on this topic, both inspired by some of the literature that I have studied. The first, following Ewert's (2020) empirical study on advantages and disadvantages of nudge strategies by limiting the scope to in-depth interviews with Norwegian academics and practitioners of nudge in climate change policies. The second project might also follow this design, but the study area would be a country or region in a developing country.

7. References

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