MASTEROPPGAVE

Climate Change in Northern Norway: young people's perceptions and engagement with climate change

Date: 15.05.17

Total number of pages: 77

NORD universitet

www.nord.no

ACKNOWLEDGEMENTS

Julia Bobina

Bodø, May 15, 2017

TABLE OF CONTENTS

FIGURES AND TABLES

LIST OF ABBREVIATIONS

PITCH - Primary Industries and Transformational Change

OECD - The Organisation for Economic Cooperation and Development

CTR - The cultural theory of risk

VGS - Videregående skole (translated from Norwegian: high school)

CC - Climate change

COP21 - The 21st Conference of the Parties (The Paris Climate Conference)

ABSTRACT

The issue of climate change has become an important topic for society, business, government and other international spheres. In December 2015, the first-ever universal global climate agreement was adopted at the United Nations Climate Conference in Paris, a document which received much attention in the media, as well as in research. The agreement impacts the development of major climate change policies, people's risk perception, norms, values and livelihood. Perceptions of risk and the need to act on the basis of everyday knowledge hinge on whether the climate problem is viewed as salient and on the individual's values and norms, a degree of trust in climate science, public debate and local potential in meeting climate change. Scholars around the world has recently underlined the need for broader research on youth and their perceptions of climate change. In contrast to the manifold studies on adult's understandings and perceptions of climate change, there is an absence of youth voices which is a major research gap and climate policy shortcoming. This master thesis aims to investigate Norwegian youth's knowledge, perceptions and attitudes towards climate change risk as they are the generation that will face consequences of a changing climate, their views are especially important to understand. Furthermore, the objective is to explore the degree to which the climate problem is perceived as salient, which may play a crucial role in shaping individual's willingness or ability to transform to a low-emission society. The study applies the cultural theory of risk framework in order to explore personal responses to climate change risks. Aiming at collecting data on individual's perceptions of the issue, the choice of semi-structured interviews as the flexible qualitative research method was preferable. I employed the non-probability sampling technique such as purposive sampling and snowball sampling when selecting the study participants. Seventeen young people aged 18-27 participated in the study. The thesis found that young people's initial associations with climate change concerned its severe impacts and causes. The study investigated that young people in northern Norway see the absence of political action on climate issue and not many perceive politicians as trustworthy voice on climate change. In addition, the thesis outlined some barriers such as financial that limit young people's responsibility towards combating climate change in northern Norway.

CHAPTER 1 INTRODUCTION

1.1 Background

Climate change poses a fundamental threat to our planet (Knutti R. et al. 2015). The role of individuals in responding to climate change, their understandings and perceptions are increasingly being emphasized in climate science and policy debates (Wolf and Moser 2011). Many scholars agree that effective responses to climate change require an understanding of what shapes how people make sense of their future (Corner et al. 2014; O'Brien and Wolf 2010; Ryghaug and Skjølsvold 2016). Perceptions of risk and the need to act on the basis of everyday knowledge hinge on whether the climate problem is viewed as salient and on the individual's values and norms, a degree of trust in climate science, public debate and local potential in meeting climate change (O'Brien and Wolf 2010).

How young people perceive the problem, which attitudes towards climate change they have is now a crucial question. As the generation that will face consequences of a changing climate in their own lifetimes, their views are especially important to understand. In Norway, the country that committed to the target of at least forty percent reduction of all greenhouse gas emissions by 2030, the issue of climate change receives considerable media attention (Ministry of Climate and Environment 2015; Ryghaug and Skjølsvold 2016). The amount of information provided in the media climate science communication is increasing, while the public concern about the climate problem is decreasing (Aasen 2015; Dannevig and Hovelsrud 2015; Ryghaug and Skjølsvold 2016). Few empirical studies have to date documented this paradox and underlined the need to find the explanation (Dannevig and Hovelsrud 2015; O'Brien and Wolf 2010). The degree of public awareness about climate change can therefore be explained by public understandings and attitudes towards the problem.

Many studies around the world has recently underlined the need for broader research on youth and their perceptions of climate change (MacDonald et al. 2013; Hibberd and Nguyen 2013; Prasadh and Suresh 2016; Ryghaug and Skjølsvold 2016). Scholars have pointed towards the benefits of engaging young people in explaining social, cultural and political inertia in responding to climate change issue since it results in more robust, complete, rich data and analysis. (MacDonald et al. 2013). Other studies indicate that how young people define and experience weather and climate is related to their values and beliefs and therefore have implications whether they adapt to the changing environment or not (O'Brien and Wolf 2010; Dannevig and Hovelsrud 2015). In contrast to the manifold studies on adult's understandings

and perceptions of climate change, there is an absence of youth voices which is a major research gap and climate policy shortcoming (MacDonald et al. 2013).

This thesis contributes to address this research gap by exploring youth voices and their experiences, observations and perceptions about climate change in northern Norway. According to some empirical studies, northern Norway can be seen as vulnerable to climate change (Amundsen 2012; Dannevig and Hovelsrud 2015). Furthermore, the findings of the thesis contribute to the research project the PITCH (2014-2018), the project managed by Prof. Grete Hovelsrud at Nord University and Nordland Research Institute. The PITCH project investigates the preconditions for societal transformational processes in primary industries such as coastal fisheries, farming, reindeer herding and the municipal sector in local communities in northern Norway (PITCH project description).

1.2 Objective and research questions

The primary objective of this research is to explore how youth experience, observe and perceive climate change in northern Norway. A further objective of the thesis is to investigate the relationship between the individual's level of understanding the climate change and the level of willingness or ability to transform to a low-emission future; in other words, what role of acknowledging the issue plays in motivating transformational actions. Wolf and Moser (2011) indicate that some individuals enact environmentally friendly behavior without or with an incomplete understanding of climate change, while others acknowledge the climate problem fully and do or do not take actions towards a low-emission future. At the same time knowledge of climate change alone is considered as useful but insufficient condition towards combating climate change (Wolf and Moser 2011). Scholars point that a range of conditions such as political, social, cultural and economical in addition to public perceptions must also be met in order to motivate individuals to act and shape effective mitigation outcomes (Ryghaug and Skjølsvold 2016; Wolf and Moser 2011). Thus, small-scale studies on public understanding of climate issue contribute to more rich data and analysis since they include the broader context found in one community.

The study endeavors to answer the following research question:

❖ How do young people in northern Norway perceive climate change?

To investigate this analysis, two sub questions ask:

- ❖ How can different personal perceptions of and responses to climate change be explained?
- ❖ What role does knowledge about climate change play in shaping individual's willingness or ability to transform to a low-emission future?

Addressing these questions contribute to an improved understanding of how perceptions of risk affect individual's ability to respond to climate change and how these perceptions may furthermore influence individual's willingness to transform to a low-emission society.

1.3 The study area

This thesis contributes to the research project PITCH aimed at understanding the preconditions for societal transformational processes in primary industries in local communities in northern Norway (PITCH project description). The larger research project covers several communities in northern Norway and in the reindeer community of Finland, but for this thesis study the city Bodø located in Nordland County was selected to explore local perceptions of young people.

Figure 1 The study area: i) location of Nordland County in Northern Europe, and ii) location of the regional capital city Bodø

Map source: Google maps; adapted by Bobina.

Nordland County is located in the northern part of Northern Europe, just north of the Arctic Circle (see Figure 1). The county is located in the northern part of Norway and has about 240 000 inhabitants, where the largest city Bodø has a population around 50 000 (Nordland County Council 2017). The region is diverse with mountains, fjords, narrow peninsulas and islands

(OECD 2016). Nature based attractions such as Rago National Park and the Lofoten Islands are significant for the region's tourism industry (OECD 2016). Nordland County is rich in terms of resources such as water resources, forests, landscapes, mineral resources which provide the crucial sources and the foundation for fisheries, agriculture, forestry, mining, aquaculture and tourism (OECD 2016). These industries present the foundation for the employment options in the region. At the same time, these export oriented sectors are not generating significant new jobs for the region (OECD 2016). The demographic trends shaping the Nordland are the ageing population and lower educational attainment than the rest of the country (OECD 2016). In order to promote sustainability of the region the innovative strategy plan for Nordland (2014-2020) was adopted, a special framework to promote innovation within the region's industries (Nordland County Council 2017).

The climate of the region varies due to the high latitude, long coastline and a range of geographic features, including mountains and islands (see Figure 1). Strong winds are very common for this particular region, bringing moist and mild air from the Atlantic Ocean (Nordland County Council 2017). In general, the region of northern Norway can be described as "climate-sensitive" due to its reliance on industries and sectors such as fisheries, agriculture and energy production, which are highly sensitive to the impacts of climate change (West and Hovelsrud 2008). Northern communities are expected to be greatly effected by the changing climate and therefore must respond to corresponding changes (Amundsen 2012; Dannevig and Hovelsrud 2015; Hovelsrud and Smit 2010; Norwegian Ministry of Climate and Environment 2010; Norwegian Environment Agency 2015). Climate change projections show that Northern Norway is likely to be vulnerable to meet the global climate change (Dannevig and Hovelsrud 2015). Warmer climate increases the risk of extreme weather events, changes in natural environment in the Arctic and in the High North (Dannevig and Hovelsrud 2015; Hovelsrud et al. 2010; Norwegian Ministry of Climate and Environment 2010).

O'Brien et al. (2004) argued that Norway as a country is perceived to be resilient to climate change due to its well-functioning economy and available resources, however the image of preparedness changes when focusing on certain communities, regions and social groups. Communities in Northern Norway are closely connected to its natural resources, political, socio-economic and cultural conditions, and are therefore particularly exposed to environmental changes (Hovelsrud et al. 2010). For northern Norway, the temperature increase, shifts in the seasons, more precipitation are projected consequences of climate change

(Amundsen 2012; Hovelsrud et al. 2010; Dannevig and Hovelsrud 2015). In addition to the impact of climate change there are other challenges facing the region of northern Norway, such as demographic and socio-economic changes (Amundsen 2012; Dannevig and Hovelsrud 2015). The climate change problem in comparison is rarely seen as the main challenge in northern Norway, other challenges are seen as more problematic (Amundsen 2012). Moreover, the scholars argue that climate change is expected to add an additional challenge to the current living conditions in the region (Hovelsrud et al. 2010).

Norwegians have a strong outdoor and nature orientation, their interactions with nature happens on daily basis, e.g. when going to work and university or having an evening walk or mountain hike close by their homes (Arnold et al. 2016). The city of Bodø presents an interesting case because of its geographical closeness to the sea with a great number of outdoor parks, forests and mountains (see Figure 1). Locals interact and experience nature every day, often saying that Bodø is a home for nature lovers. To understand how these trends are affecting youth perceptions, there is a need to explore youth voices and their experiences with climate change issue found in the city of Bodø in northern Norway.

1.4 Contribution of the study

In spite of almost three decades of existing research on public perceptions of climate change, there still remains the gap in exploring conditions that shape public's responses to climate issue (Wolf & Moser 2011; Brechin and Bhandari 2011). The role of the national context in studying people's perceptions of climate change is becoming more important worldwide (Brechin and Bhandari 2011). My study therefore focuses on investigating youth public perceptions of climate change within one country, considering beliefs, norms and values of the study area. According to Capstick (2014), the application of comprehensive small-scale study of public perceptions offers "the potential for better appreciation of the cultural contexts in which climate change perceptions are evolving" (p.2). Thus, the thesis will contribute to a better understanding of young people's perceptions of global climate change within one country-differences. It furthermore contributes to the existing body of knowledge on public perceptions of climate change.

Moreover, the study results have a potential benefit for the research project Primary Industries and Transformational Change – PITCH, the project managed by Prof. Grete Hovelsrud at Nord University and Nordland Research Institute. The thesis as the PITCH project involves the young age group as they are perceived as important in order to meet future climate change challenges.

1.5 Structure of the thesis

In the introductory chapter I have presented the research topic, the main objective of the study, research questions and the study area. Chapter two is the literature review covering mainly the international overview of the literature on public engagement with climate change and the review of the literature in the Norwegian context. I present the overview of the early studies and more recent studies on public perceptions of climate change. I emphasise the role of transformational actions to avoid dangerous consequences of changing climate and therefore include the overview of the literature on climate change and social transformations. The third chapter accounts for the theoretical framework of the study where I explain the choice of the theory applied and then emphasise the role of cultural theory of risk in climate change research. Chapter four covers the methodological background of my research. In the chapter five I present the empirical findings of the thesis within five inter-linking categories. The discussion about analysis of the empirical findings in answering the main research question of the study takes place in the chapter six. The concluding chapter summarizes the main findings of the study where I discuss possible explanations for the empirical results.

CHAPTER 2 LITERATURE REVIEW

The research on public perceptions of climate change is manifold. Public understandings and perceptions of climate change have garnered the interest of research and policy for almost three decades (Wolf & Moser 2011). A long history of interdisciplinary research pays attention to the powerful role that human values have in shaping individuals' engagement and understanding of environmental issues (Corner et al. 2014). Norwegian scholars and scholars in many other countries have become more interested in climate science communication, from psychology to linguistics, social science, political science and philosophy (Ryghaug and Skjølsvold 2016, p.1).

Following the international overview of the literature on public engagement with climate change, I then provide a review of the literature in the Norwegian context. I firstly explore early studies on public perceptions of climate change which took place in the period from 1980s to late 1990s. Secondly, I present the overview of recent studies dated by the period from early 2000s to present. After all I move to the research on public perceptions of climate change conducted in the Norwegian context. I end this chapter by discussing the literature on youth and climate change perceptions and then move to the literature on climate change and social transformations.

The review of the literature draws from various research databases such as SCOPUS, DOAB (directory of open access books), Google Scholar, DOI (Digital Object Identifier System), Wiley Online Library, internet and archive searches, project documents, statistics, newspaper search. Using search words (words and phrases) such as "climate risk", "perceptions of climate change", "youth engagement with climate change", "climate change in northern Norway", "perceptions of climate change worldwide", I have explored a big scope of relevant sources on climate change perceptions in order to answer the main question of the study. The search generated around 80 relevant works that contributed to the writing of the thesis.

2.1 Public understandings and perceptions with climate change

2.1.1 Early efforts (from 1980s to late 1990s)

With over two decades of research on public perceptions of climate change, wide-ranging attitudes towards climate change have developed. Capstick et al. (2014) noted that from 1980s a widespread public concern and awareness have developed since the emergence of climate change as a serious environmental problem. In addition, Dunlap (1991) underlined that the 1980s was a period of significant and steady increase in both public awareness of the

seriousness of environmental problems and in the support for environmental protection across the globe that resulted unprecedented levels of public concern for environmental quality. Increased environmental awareness led to the growth of the environmental justice movement and therefore the need in work addressing changing public perceptions appeared. The early research on public perceptions of climate change has been mostly conducted in developed nations such as USA, New Zealand and Sweden (Arcury 1990; Capstick et al. 2014). The majority of early studies on public perceptions of climate change were foremost conducted in the developed nations as other experienced economic problems at that time (Capstick et al. 2014). The study by Brechin and Bhandari (2011) adds that the first efforts at investigating comparative public opinion on climate change across the globe started not earlier than after 1998, when researchers added larger samples and comparative country-level probability sampling to earlier works on the exploration of climate change issues that were initially carried in richer nations (p.2).

Climate change problem was often perceived as a problem caused by the localized air pollution, people were worried about the view that the weather had already changed (Capstick et al. 2014). Early research in New Zealand found that people were worried about the changing climate although the half of participants of the study did not know much about its causes (Capstick et al. 2014). Relatively small-scale studies were carried out across the globe at that time and the climate change was often conflated in people's understanding with "localized air pollution and ozone depletion" (Capstick et al. 2014, p.9). Many scientists argue that studies carried out in the late 1980s in developed nations generally concluded a confusion among public in identifying ozone depletion and climate change because of limited knowledge about the issue, e.g. some of studies suggested that "ozone depletion was a cause of climate change" (Arcury 1990; Brechin and Bhandari 2011; Capstick et al. 2014). Brechin and Bhandari (2011) identified that the early research project in Sweden in 1990 observed that only few respondents identified the burning of fossil fuels as the main anthropogenic source of climate change, very few linked the climate change with the potential problems for humans (p.3). The early studies on public understandings and perceptions with climate change showed low level of public knowledge about the fossil fuel sources of the greenhouse effect, suggesting considerable lack of public awareness about the issue of climate change and understanding of its causes (Brechin and Bhandari 2011).

The early 1990s was the period that followed "entailed a sustained growth" of public concern and awareness of climate change consequences overall (Capstick et al. 2014). Whilst the early

studies on public understandings and perceptions with climate change tended to see the climate change as "undecided or yet-proven" phenomena, there was an increasing tendency towards the late 1990s and later for climate science to be characterized as "scientific dispute" (Capstick et al. 2014, p.19). The early studies on public perceptions of climate change related to a large extent to the physical and scientific aspects of climate change such as changes in temperature and weather seasons caused by the tilt of the Earth's axis (Capstick et al. 2014). The scientific aspect of climate change corresponded to what the science told about the climate issue in that time determined by the knowledge of the scientific community. For example, climate change was often identified as a subset of stratospheric ozone depletion where the burning of fossil fuels was perceived to contribute to the ozone depletion (Capstick et al. 2014).

The relationship between "science" and "the public" was a key concern for many scholars since the early 1990s (Ryghaug and Skjølsvold 2016). The information about climate change presented by climate science was transported to the audience in order to generate knowledge, acceptance and trust, to guide action. However, according to Ryghaug and Skjølsvold (2016), this "model of science communication" used in the early 1990s proved to be not effective for informing or convincing the broader public and therefore, it had its limitations as a guide for action (p.3). Since the early 1990s climate scientists have increasingly been interested to find a strategy of openness to develop trust among people. However, the science made it difficult for people to relate to climate change by "choosing an alternative strategy: that of closing to preserve control" (Ryghaug and Skjølsvold 2016, p.3).

Although through the limited model of public understanding of climate science, where the key problem was a crisis of trust, since the late 1990s there was a call for more open climate scientific practices, which could possibly contribute to growing public understanding of climate problem worldwide. Ryghaug and Sørensen (2008) noted that a new dynamic appeared that was mostly focused on finding the dialogue strategy between climate scientists with researchers on other fields, policy makers, public authorities and industry. The study also noted that the involvement of new actors developed new strategies and put significant effort into reaching their "diverse target audiences through diverse dissemination efforts" (Ryghaug and Skjølsvold 2016, p.4). The development of more policy oriented strategies called for openness of climate change debate and public engagement. With the overall growth in concern, the problem of changing climate received more attention in media, in turn associated with growing scientific evidence and political attention (Corner et al. 2014, p.9).

Corner et al. stated that during the late 1990s the public engagement with climate change has become polarized along values-based lines with dividing individuals into two groups: those who tend to strongly endorse self-transcendent values and view climate change as a serious problem; and those who more strongly endorse self-enhancement values, prioritize individual self-interest to the problem of changing climate. Framing the issue of climate change with certain cultural values led to the debate how best to engage individuals around this topic, that furthermore led to the activation of research on finding the most effective way to communicate climate change. Several studies suggested reframing the problem of changing climate in order to reach the audiences who would normally avoid or even dismiss the issue, e.g. presenting it as a public health problem or connecting it towards environmental messages on pollution (Corner et al. 2014). Later it was found that one-way message communication tended to be ineffective in social practices. One-way message oriented science tended to be unsuccessful in studying public perceptions of climate issue because of limited message format. One-way message-oriented science met the challenge of finding the balance between the diverse set of values that any given group of individuals holds and the values that are congruent with a more sustainable society (Corner et al. 2014). In addition, researchers underlined that very few individuals hold only one set of values in their livelihoods and therefore one-way climate change communication strategy tend to be weak "at fostering significant and sustained behavioral engagement" (Corner et al. 2014, p.7). This has resulted in increased need for new research initiatives in the early 2000s, initiatives that will be able to investigate people's attitudes towards climate change issue on a broader scale (Corner et al. 2014).

2.1.2 Recent studies (from early 2000s to present)

Trends of the 2000s and early 2010s showed growing public concern about climate change worldwide. The study by Brechin and Bhandari (2011) noted that collected data from several cross-national public opinion surveys highlighted to growing strong public support for climate change and climate mitigation policies worldwide. By acknowledging climate change problem cross-nationally, studies into individual understandings of climate change have emerged using new methodologies with the focus on specific audiences in the developed world (Wolf and Moser 2011).

The study by Wolf and Moser (2011) noted that the majority of works to date have examined collective perceptions of changing climate using primary quantitative data drawn from large-scale samples where public perceptions of climate change issue relate to the acknowledging the

problem as "no personal and a distant threat" (p.2). Scholars to date underline that how people understand the problem is crucial in shaping public responses and willingness to change behaviour, they argue that with the perception of the climate problem as a distant threat, the engagement of individuals may be limited (Wolf and Moser 2011). Scholars criticize large-scale studies on public perceptions of climate change and argue for the small-scale approach that provides better insights into personal perceptions, understandings and level of engagement with climate change. Capstick et al. (2014) add that small-scale studies are able to provide the potential for better appreciation of the cultural contexts in which climate change perceptions are evolving.

Scholars underline a recent growth in small-scale survey studies on climate change perceptions worldwide (Capstick et al. 2014; McCright and Dunlap 2011; Smith and Leiserowitz 2012; Wolf and Moser 2011). The trend of this time is concentrated on finding "the juice in the details" (Wolf and Moser 2011, p.17).

2.2 Studies on perceptions of climate change in a Norwegian context

In recent years, there has been a marked increase in research on public perceptions of climate change. The role of climate science and climate communication has been often underlined. Thus, the Figure two illustrates how the Norwegian media climate science communication has changed over time (Ryghaug and Skjølsvold 2016, p.6).

Figure 2 Number of Norwegian newspaper articles on climate change, adopted from Ryghaug & Skjølsvold (2016).
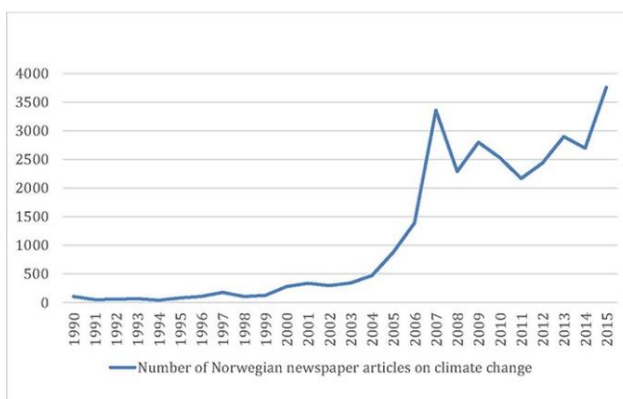
On the other hand, the Figure three shows the relative level of "concern about climate change" in Norway. It illustrates the distribution of concerns about the climate issue since 2003 and

estimates that the level of public awareness about climate problem is decreasing in Norway (Aasen 2015, p.217).

Figure 3 Level of "concern about climate change" in Norway, adopted from Aasen (2015).
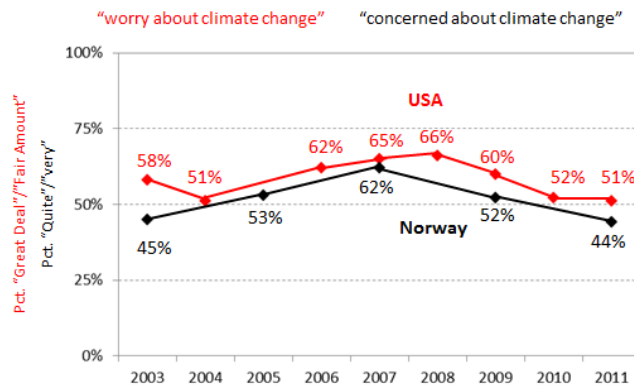
The data illustrates that the Norwegian media climate science communication is rapidly increasing, while public concern about climate change in Norway is decreasing (Ryghaug and Skjølsvold 2016; Aasen 2015). This provides support for disconnect between "science" and "the public", highlighted by numerous amount of studies (Ryghaug and Skjølsvold 2016; Dannevig and Hovelsrud 2015; Aasen 2015). Public concern about climate change is decreasing while scientific research on public perceptions of climate change is increasing (Dannevig and Hovelsrud 2015). This paradox influences the recent studies on climate change that now more often focus on studying people's perceptions of climate risk and climate change communication (Ryghaug and Skjølsvold 2016).

In Norway people feel a strong attachment to nature and often perceive their country as environmentally friendly (Arnold et al. 2016). However, despite traditions to see Norway as a "green" country with beneficial future, there is a public concern whether the climate change poses the risk on a national and regional scale. Recent studies argue that the potential impacts of climate change in Norway will be experienced through changes in the magnitude and frequency of extreme events (Dannevig and Hovelsrud 2015; Hovelsrud et al. 2010; O'Brien et al. 2006). The study by West and Hovelsrud (2010) underlined that northern communities have throughout the long history adapted to highly variable environmental and socio-economic conditions, but to date there is an uncertainty if they are able to cope the challenge.

Ryghaug and Skjølsvold (2016) underlined that studies of Norwegians in the early 2000s showed that people do not lack the knowledge about climate change as a human-made

12

phenomenon, but they lack actions which comes from a psychological perspective (p.12). Norwegian values and worldviews have been perceived as limiting factors for the potential change (Ryghaug and Skjølsvold 2016, p.12). Arnold et al. (2016) explain it by the common trend found in perceptions of Norway given by locals who often see their country as environmentally friendly and "green". Citizens of politically stable welfare state with the perception of their country as a green and environmentally friendly are tend to perceive their future as safe, often taking it for granted and not willing to change their habits.

Other studies examining the interest of the climate issue among public focused on how the media covered and communicated climate change with the respect of green technologies and the potential of oil and gas industry (Buhr and Hansson 2011; Fløttum and Espeland 2014; Ryghaug 2006; Ryghaug and Skjølsvold 2016). The study by Fløttum and Espeland (2014) noted that there is a specific conflicting role in the country's policy: Norway perceived as a large oil and gas provider and at the same time the country perceived as the leading actor on environmental issue. Ryghaug and Skjølsvold (2016) explain it by saying that with the emerging widespread perception of Norway as an environmentally friendly country, it is more likely that the oil and gas industries will be able to continue its domestic and international activities without much critical scrutiny from the media (p.8).

The studies on perceptions of climate change in a Norwegian context discussed above underlined the significant role of the public in responding to the issue of climate change. With the new climate policy goal aiming at strengthening the climate agreement, Norway is meeting the challenge of finding a balance on climate politics, energy policy and technology development (Ministry of Climate and Environment, 2015). There has been a recent increase in the interdisciplinary research focused on the role of the media, climate science and policy debates in a society (Joffe and Smith 2013; Ryghaug and Skjølsvold 2016). More disciplinary groups have become interested in climate change communication in order to develop new strategy on making their practices more open for society and therefore to increase trust in climate science.

2.3 Youth and climate change perceptions

Youth voices and their attitudes towards the climatic and the environmental change are relatively absent in the literature on the role of the public in responding to the issue of climate change (MacDonald et al. 2013). In contrast to the manifold scope of studies on public understandings and perceptions with climate change presented in the thesis, the number of

studies on youth and climate change perceptions is relatively limited. While there has been a significant research in the developed countries on climate change observations, impacts and adaptation strategies, most of these studies have focused on the experience and the knowledge held by adults such as those involved in primary industries due to their "intimate knowledge of the land and their cultural standing in the community (Dannevig and Hovelsrud 2015; MacDonald et al. 2013; Ryghaug 2010; Ryghaug and Skjølsvold 2016). The study by MacDonald et al. (2013) state that research on children's risk communication and management is expanding to date and furthermore has demonstrated that children have awareness of risk mitigation and a belief in their ability to mitigate current and future risk (p.361). However, the authors state that there is a gap in research focused on the climate change issue within children and youth climate risk vulnerability and adaptation to date. The main argument for the research addressing children and youth perceptions of climate issue is the absence of voices and insights on the climate problem from a substantial and important part of the population as youth and children (MacDonald et al. 2013; Hood et al. 2011).

Many studies around the world has recently underlined the need in broader research in the area of youth and specifically on youth perceptions of climate risk, e.g. in Canada, India, United Kingdom and Norway (MacDonald et al. 2013; Hibberd and Nguyen 2013; Prasadh and Suresh 2016; Ryghaug and Skjølsvold 2016). Hibberd and Nguyen (2013) explains it by saying that the media and other major communication forms in the United Kingdom tend to hinder rather than to help young people to be more engaged and involved in climate change communication due to the existing lack of relevant sources and messages (p.28). Prasadh and Suresh (2016) underline a significant gap in research on youth attitudes towards the climate change problem in India. MacDonald et al. (2013) argue for the engagement of young people in community-engaged and participatory research considering that it results in more robust data and analysis, more complete, rich and mutually beneficial for communities and researchers (p.369). In this context, further research on youth understandings and perceptions with climate change may allow for a deeper understanding of the problem with the focus on specific community-based characteristics as socio-economic situation, gender, age, geographic location and livelihood activities.

It is more likely that future work with young people in the field of climate risk perception and communication will help to address the knowledge gap on youth climate communication. This

contributes to an excellent foundation that "could guide climate change vulnerability and adaptive capacity research with young people" (MacDonald et al. 2013, p.369).

2.4 Literature on climate change and social transformations

Identifying the relationship of youth perceptions of climate change risk and social transformations contributes to understanding the individual's ability or willingness to transform to a low-emission society. O'Brien (2011) argues that transformation is often presented by scholars and activists as "the solution to environmental change and social sustainability" (p.4). Transformation itself can be understood as "a psycho-social process involving the unleashing of human potential to commit, care and effect change for a better life" (O'Brien 2011, p.4). Transformation means different things to different groups and in this thesis the idea of social transformation means the opportunity for young people to maintain the environmentally friendly lifestyle. The thesis furthermore investigates how perceptions of young people influence their willingness to transform to a low-emission society where social transformations are seen as crucial.

Climate change calls for collaborative responsibility in meeting the unpredictable impacts of changing climate (O'Brien 2016). There is growing recognition that humans must consider transformational actions to avoid dangerous consequences of changing climate throughout various individual and collective responses on climate change (O'Brien 2011; Pelling 2011). In recent years, there has been a growing interest among researchers and academicians in identifying the relationship of public perceptions of climate change and the potential for social transformations. Big scope of literature has covered the knowledge on how individuals, communities and a society respond to changing conditions and risks (Adger et al. 2009; Feola 2015; O'Brien 2016; O'Brien 2011; Pelling 2011; Hovelsrud and Smit 2010; Westley et al. 2011). Westley et al. (2011) stated that governance with its top-down approaches to problem solving may not be able to trigger real transformations toward global sustainability alone, there is a need in bringing as many different ideas and perceptions that may further contribute to the understanding motivations for social transformations. Because of distributed nature of climate problem, a wide range of experience and voices held by adults as well as young people is needed (Westley et al. 2011). This calls for the involvement of all age-groups perceptions in order to solve different parts of climate change problem.

CHAPTER 3 THEORETICAL FRAMEWORK

This chapter presents the basic principles of the main theoretical position in this thesis. The study applies the cultural theory of risk (CTR) framework in order to explore personal responses to climate change risks. The CTR framework offers a way to categorize groups and individuals according to their culturally grounded perceptions of risk (Douglas and Wildavsky 1982). This categorization contributes to understanding of individual's acceptance of climate science and climate risks (Dannevig and Hovelsrud 2015).

The CTR framework provides an explanation of different personal responses to climate change and develops a useful framework for analyzing how climate change knowledge can be turned into action (Dannevig and Hovelsrud 2015). According to Wolf and Moser (2011), research addressing cultural theory of risk framework often draws on four common attitude types among public around the world in order to examine personal responses to climate change issue.

3.1 Cultural theory of risk

3.1.1 Origins of grid and group cultural theory

People do not act just as individuals but their actions comes from existing beliefs and values presented in various public groups and cultures. The role that culture plays in social patterns is leading to a diversity in people's behaviours, beliefs, decisions whether to address climate change problem and if deciding to act, what it will be. The cultural theory of risk has been originally developed by anthropologist Mary Douglas (Douglas and Wildavsky 1982). Douglas was one of the first who brought culture into risk perception as a response to psychometric approaches studying individual risk perceptions.

The mid-1980s was the period of significant development of the cultural theory of risk (Mcneeley and Lazrus 2014). This time the climate change problem has to a large extent been framed in the context of existing social interactions (Douglas and Wildavsky 1982; O'Riordan and Jordan 1999). According to O'Riordan and Jordan (1999), the early cultural theorists explained human interaction "rather more loosely" using two basic elements – grid and group – in order to develop "four ways of life" (p.86). Several studies indicated that there are common attitude types among individuals around the world that can be explained within the cultural group-grid typologies: egalitarians, hierarchists, individuals, and fatalists (Mcneeley and Lazrus 2014; O'Riordan and Jordan 1999; Wolf and Moser 2011). Researchers engage the cultural theory of risk in studying public perceptions of climate change as they believe it

provides "a useful heuristic and explanatory power" for understanding the role of culture in climate change adaptation and mitigation (Mcneeley and Lazrus 2014, p.507). The theory links and therefore explains the framings of risks and how those framings create responses, "respective voices" about climate change problem in various forms and attitudes among individuals (Mcneeley and Lazrus 2014). Some "voices" of four said types outlined in CTR group-grid typology correspond to the *egalitarians* who see the climate system in a delicate balance, while the *hierarchists* tend to perceive climate as manageable, they underline the need in a certain control and better predictive capabilities in the relations between humans and nature (Mcneeley and Lazrus 2014, p. 509). *Individuals* tend to perceive climate system as favorable to humans with a high degree of their independence. In contrast to above mentioned, *fatalists* choose to be sceptical and not involved in any actions. The Figure 4 shows the classical cultural theory of risk grid-group typology adopted from O'Riordan and Jordan (1999).

Figure 4 The cultural theory of risk grid-group typology adopted from O'Riordan and Jordan 1999
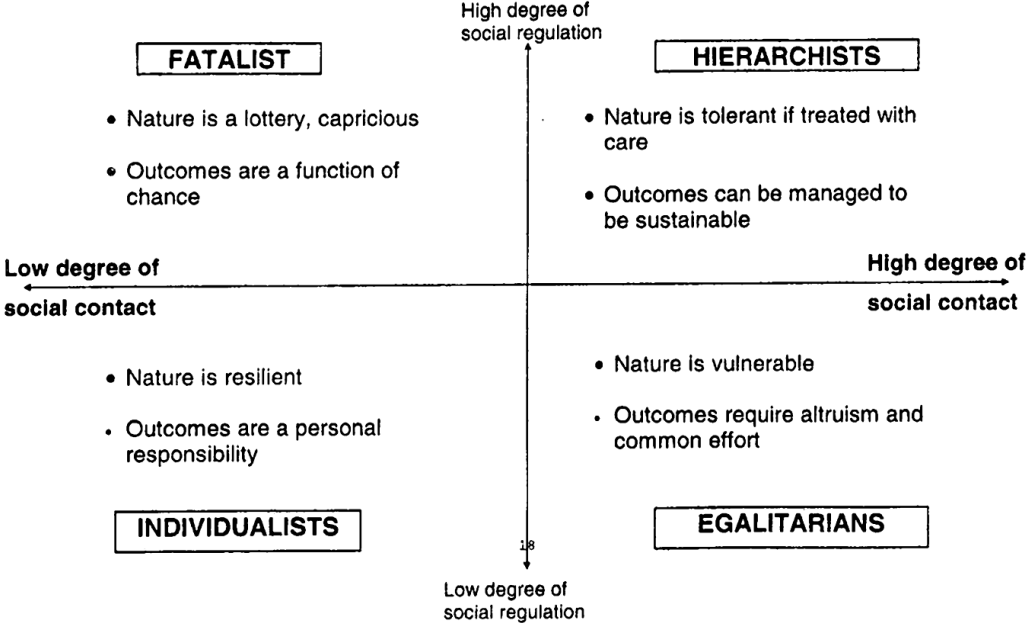
The four competing worldviews provides a frame of values and beliefs "about how society should be organized" (Mcneeley and Lazrus 2014, p.507). Four types of worldviews in CTR can be associated with certain forms of institutional culture. According to Thompson and Rayner (1998), this can lead to a conflict between groups with different institutional cultures about how they recognize risks and approach solutions. *Egalitarians* tend to be concerned about

17

the changing climate and tend to view the relationship between humans and nature as lying in a delicate balance (Mcneeley and Lazrus 2014). O'Riordan and Jordan (1999) find that egalitarians tend to be true democrats and are concerned over decisions that should be taken following open and frank debate. They are suspicious to anyone in authority. *Hierarchists* tend to see climate as manageable and tolerant of human influence (Mcneeley and Lazrus 2014). In the group of hierarchist way of life the perceptions of nature are built on the respect of nature, they tend to see nature as tolerant if treated with care (O'Riordan and Jordan 1999). They look to state regulations and are likely to trust climate scientists and those in authority if it is appropriately legitimised (O'Riordan and Jordan 1999; Dannevig and Hovelsrud 2015). *Individualists* are particularly concerned about problems that can affect their freedom and autonomy (O'Riordan and Jordan 1999). They are opposite to the hiearchist's worldview preferring instead personal responsibility for any actions. Moreover, according to Mcneeley and Lazrus (2014), they tend to view climate as naturally variable and that humans cannot change this natural process. Individualists perceive nature as resilient (O'Riordan and Jordan 1999). *Fatalists* are typically not involved in management process, and tend to see climate as fundamentally random and unpredictable (Mcneeley and Lazrus 2014). They tend to perceive nature as a lottery, capricious, where the role of humans is perceived as not salient in mitigating climate change (O'Riordan and Jordan 1999).

My understanding corresponds to the classical approximation of cultural theory within public perceptions of nature and the outcomes which each way of life associate with a certain action and responsibility (see Figure 4). Generally, the cultural theory of risk develops constructions that determine people's cultural interpretations, values and beliefs about how nature and ecosystem function (Mcneeley and Lazrus 2014). The thesis argues that the CTR grid-group typology approach contributes to better understanding of climate change communication.

3.1.2 Cultural theory of risk in climate change research

The role of culture in understanding people's attitudes towards climate change in order to address the problem through adaptation and mitigation policy and planning measures has been investigated in earlier climate change research (Dannevig and Hovelsrud 2015; Douglas and Wildavsky 1982; Mcneeley and Lazrus 2014; O'Riordan and Jordan 1999). The cultural theory of risk has been applied to explore climate perceptions and actions by many scientists (Dannevig and Hovelsrud 2015; Douglas and Wildavsky 1982; Thompson et al. 1990). The scholars emphasised that the theory has clear connections to explore how institutional factors

such as organizational culture frame risks differently in decision making processes and helps to compare this knowledge with other context and explanatory factors. The study by Mcneeley and Lazrus (2014) argues the role of the CTR approach for understanding community-level climate adaptation, its real-world application in understanding public perceptions of climate change risk. According to Mcneeley and Lazrus (2014), the application of the cultural theory of risk lead to understanding of which actions people consider as salient and which of those actions are socially acceptable in the community in order to lessen the risks (p.509). Culture is present at many levels in society and the authors argue that institutional cultures have a significant meaning for addressing climate adaptation. Authors underline the importance of institutional cultures in determining the success of climate change adaptation (Mcneeley and Lazrus 2014). The CTR approach contributes to exploring barriers to individual responsibility in meeting climate change risk. It furthermore allows to investigate a degree to which perceptions of risk affect individual's willingness or ability to transform to a low-emission society. Moreover, it allows to see how different framings create "respective voices about climate change risks and responses in various public forums" (Mcneeley and Lazrus 2014, p.507).

The thesis indicates that different perceptions of climate change risks are present among young individuals in northern Norway. According to Wolf and Moser (2011) the four generalized types of cultural worldviews have a strong effect on how climate change is perceived and viewed. I therefore argue that cultural worldviews play a crucial role in shaping responses of individuals, their understanding of and support for policies, aiming to address the problem of climate change. It is thus useful to understand cultural worldviews of individuals for the success of policies that count on the active, behavioral involvement of individuals for their success (Wolf and Moser 2011). The CTR approach therefore explains how individual engagement can be an effective tool for the political success aimed at reducing carbon footprints in the Norwegian society. This approach will further assist me in the process of investigation Norwegian youth's knowledge and attitudes towards climate risk and then, contribute to explore the degree to which climate problem is perceived as salient among young people.

CHAPTER 4 METHODOLOGY

The ongoing process of research seeks to understand the world of humans, to explore new ideas, to build the trust line to each other. The trust in science is characterized by a rigorous methodology which defines how one will go about studying any phenomenon. Silverman defines "methodology" as the choices we make about cases to study, methods of data gathering and forms of data analysis in planning and executing research (2006, p.15). The methodology of my study is influenced by the phenomenon under investigation which requires that participants share personal experiences and thoughts about the certain topic. The phenomenon under investigation determines the methodology of the study as it contributes to investigate a global phenomenon of climate change and helps to understand this issue in natural settings, giving emphasis on the personal experiences, meanings and views of the respondents (Mays and Pope 1995). Throughout this research, I am aiming at investigating individual's understanding, perception and engagement with climate change which therefore requires open discussion between me and the respondent.

In Chapter four I am beginning with the methodological background of my research and then continue with presenting the process of data collection and selection of informants, discussing issues such as finding informants while being an exchange student in Canada, using English and Norwegian languages through the interview process. Further I continue with the ethnical aspects of research process, then present the data analysis and conclude with the limitations of the study.

4.1 Research method: why qualitative

Many scholars argued the importance of qualitative research when studying people's experiences, aimed at achieving an in-depth understanding of how individuals perceive a certain phenomenon (Amundsen 2012; Dannevig and Hovelsrud 2015; Kvale 1996; Silverman 2006; Thagaard 2009). Kvale (1996) stated that qualitative research attempts to understand the world from the subject's point of view, to unfold the meaning of people's experiences and uncover their lived world prior to scientific explanations. Thagaard (2009) adds that the qualitative approach aims at achieving analytical descriptions through in-depth understanding of the certain phenomenon. Silverman (2006) recognizes that methods used by qualitative researchers "exemplify a common belief that they can provide a deeper understanding of social phenomena" that cannot be obtained from a quantitative methodology (p.53). Studies of climate

perceptions have drawn on qualitative research method with the involvement of semi-structured interviews (Dannevig and Hovelsrud 2015; Amundsen 2012).

The qualitative research method suits the main objective of the thesis which aims to achieve an in-depth understanding of how young people see and experience the climate problem in northern Norway. Wolf and Moser (2011) highlight the importance of qualitative research and argue for its contribution into the study of individual's understanding, perception and engagement with climate change that therefore cannot be obtained from large-scale quantitative surveys (p.3).

There are different ways to achieve in-depth understanding of a certain issue in qualitative research. If one wants to study people and their understanding of a certain problem, the trust-connection between the researcher and the informant is crucial, where the qualitative research method provides an opportunity for answering "how" and "why" questions with a broader perspective (Silverman 2006). Kvale (1996) defines three core methods such as in-depth interviews, a participant observation and focus groups. Aiming at collecting data on individual's perceptions of climate change, the choice of semi-structured interviews as a flexible qualitative research method was preferable.

4.2 Data collection and selection of informants

In the process of data collection primary data sources have been used. In order to collect primary data, the thesis examined perceptions of climate change risk using qualitative methodology such as semi-structured interviews. Thus, a small-scale qualitative study focused on a particular segment as Norwegian youth from Bodø, provides insights into the particular understandings, perceptions and the level of engagement of the group studied. The qualitative interview was a natural choice for the gathering of data about my topic.

4.2.1 Interviews

Kvale (1996) described the meaning of the interview as a particular research method, which divides human-to-human conversations in three forms – in everyday life, in literature and in the professions. He underlined a specific role of the research interview in the process of data collection which is based on "the conversations of daily life" (Kvale 1996, p.6). With regards to my study qualitative interviews built on open flexible discussion about daily life issues were of greatest importance simply because all the data that I needed was mainly coming from person's perceptions of climate change issue. The use of interviews allowed me as a researcher

to ask spontaneous, lively questions in order to answer the main question of the study. Johannessen et al. (2016) state that qualitative interviews are useful when a researcher needs to give informants greater freedom of expression than a structured questionnaire allows (p.145). The process of studying attitudes and knowledge about climate change requires a well-suited method which allows observations of how young people reason about and make sense of the climate problem (Ryghaug 2010).

4.2.2 Semi-structured interviews

Due to the objective of the thesis I used flexible semi-structured questions. According to Kvale (1996), simply expressed interview questions contributes to the more spontaneous, lively and unexpected answers from the respondents. Semi-structured interviews provide the opportunity to get at the core of peoples understanding and perspectives. Drever (1995) argues that semi-structured interviewing is a very flexible technique which is broadly used for a small-scale research. I therefore see semi-structured interviews as a well-suited method in answering the main research question of the study. Open flexible questions formed the interview guide of the study. This was a certain guideline organized around three topics: i) perception of climate change (understanding of the problem); ii) the role of the individual in meeting climate change (actions on climate change); and the last iii) perspectives on climate change. The interview guide allowed me to encourage the respondents to lead the conversation on climate change issue.

Semi-structured interviews contain both open-ended and close-ended questions (Silverman 2006). This therefore allows respondents to get more "freedom" in presenting their viewpoints and opinions, they are not forced to follow a certain rigid interview structure. The combination of both structured and unstructured segments provides me the opportunity to explore more unknown thoughts and ideas from the respondents.

4.2.3 Selection of informants

Due to the nature of the study I decided to use purposive and snowball sampling, which in contrast to a random or probability technique provides "the most effective way of developing an understanding of complex issues relating to human behaviour" (Marshall 1996, p.523). I believe that a non-random sampling provides the illumination and understanding of the situation. I therefore apply the non-probability technique in order to get a range of types among the participants of the study: those who are studying at the secondary schools (Bodin VGS;

Bodø VGS) and those who are more or less environmentally interested (Natur og Ungdom). Non-probability sampling offers the benefit for the study since it contributes to the choice of right participants, those who are "richer" and are "more likely to provide insight and understanding for the researcher" (Marshall 1996, p.523).

According to Thagaard (2009), a purposive sampling allows a researcher to sample with the certain purpose on mind. Silverman (2001) states that purposive sampling is an acceptable kind of technique when the sample for the study is chosen by the judgment of the researcher. The said technique serves as an effective sampling method due to the nature of my research and the main objective of the study. One of the first thing I did when choosing the participants for the study, was to verify that the respondent does meet the criteria for being in the sample. Eleven participants were interviewed using the purposive sampling.

While being on exchange to Canada and arranging interviews via Skype, I employed the snowball sampling method using Facebook. Some of the interviewees recommended their classmates and friends. In addition, I found that employing the Facebook platform for snowball sampling method contributed in finding open-minded curious people. Norwegian language was the main communication language of the thesis that contributed in building and establishing contact with participants. Baltar and Brunet (2012) add that the response rate when using Facebook as an instrument to study people is often higher than in the traditional snowball technique. The authors explain it by saying that potential interviewees increase their level of confidence since the researcher presents his personal information on the webpage that makes them more aware about their contact person (Facebook's profile)" (Baltar & Brunet 2012, p.59). Six participants were interviewed using the snowball sampling via Skype. In sum, seventeen young Norwegians were interviewed. The interviews lasted from 35 to 45 minutes. The average length was a half an hour. The setting made participants feel comfortable and relaxed in the interview situation.

The first group consisted of five more environmentally interested young people aged between 19-26 years old such as members of Natur og Ungdom. Their perceptions provided a background in order to further investigate distinctions between a random young individual and the more environmentally interested one, and to see if there are major differences and what they are. The second group of informants consisted of six young people aged 21-27. These were students from the university with different backgrounds. The third group involved six individuals aged 18 years old. These were participants from two secondary schools located in

Bodø such as Bodin VGS and Bodø VGS. The permission to conduct a research study at the school was received after the meeting with the school inspector. Three students from each school have been interviewed.

4.2.4 The sample

My entire sample consists of seventeen interviews spread over the categories showed in the Table 1 below. This includes eleven interviews at the Nord University (UNI), three at the secondary school Bodin VGS (BNVGS) and three at the secondary school Bodø VGS (BDVGS) (see Table 1). The sex of the informant such as "W" equals to the female, "M" equals to the male respondent. "NU" equals to those engaged into youth environmental organisation such as "Natur og Ungdom" and "NNU" equals to those who are not a member of Natur og Ungdom (see Table 1). Eleven interviews took place in the city Bodø while six applied Facebook platform (during the exchange semester in Canada).

Table 1 The sample of informants

	AGE, W/M	YEARS IN BODØ	NU/ NNU	UNIVERSITY (UNI)	BODIN VGS (BNVGS)	BODØ VGS (BDVGS)
1UNIM	25, M	4	NU	X		
2UNIW	27, W	27	NNU	X		
3UNIM	26, M	26	NU	X		
4UNIW	25, W	3	NNU	X		
5UNIW	24, W	3	NNU	X		
6UNIM	22, M	3	NNU	X		
7UNIM	24, M	4	NNU	X		
8UNIW	21, W	21	NNU	X		
9UNIW	21, W	21	NU	X		
10UNIW	19, W	2	NU	X		
11UNIW	25, W	3	NU	X		
12BDVGSM	18, M	18	NNU			X
13BDVGSW	18, W	3	NNU			X
14BDVGSW	18, W	18	NNU			X
15BNVGSW	18, W	4	NNU		X	
16BNVGSM	18, M	18	NNU		X	
17BNVGSW	18, W	15	NNU		X	

4.3 Ethical issues in the study

As researchers work with data collection, they need knowledge and understanding of the main ethical issues in research in order to be able to design and undertake ethically acceptable investigations (Behi and Nolan, 1995). This means that due to the nature of research several ethical considerations must be taken into account. As stated by Behi and Nolan (1995), most ethical guidelines for research require that "anonymity or confidentiality is guaranteed, consent is informed, and dignity is maintained" (p.11). I therefore took all ethical considerations throughout my work in order to protect respondents as much as I could.

The important ethical consideration in my study was to make sure that respondents are willing to participate in the interview. At the beginning of each interview an oral consent was given to the participants where I provided full information orally about the study and explained what it meant for participants to take part in the interview. When obtaining oral consent, I ensured that the consent process has been recorded in the record of oral consent of the thesis. I also underlined that the participant does not have to talk about anything he is unwilling and that he has the opportunity for ending the interview at any time and withdrawing from the study. Thagaard (2009) highlights that it is important to keep the integrity of the respondent throughout all the interview process where the respondent feel comfortable and open in answering all types of questions.

I assured all participants in the interviews that they would be treated anonymously. The participants were told how my master project will protect their anonymity with respect to ethical implications. I explained that all interview responses and personal data will only be shared with research team members (me and the supervisor) and I will ensure that any information I include in the thesis does not identify an individual directly as the respondent. Thus, in the presentation of findings in the study, the respondents are given codes in order to protect their identities, e.g. 14BDVGSM, 4UNIW, 17BNVGSM; where "BDVGS" stands for the interview at Bodø secondary school, "UNI" - the interview at the university, "BNVGS" – the interview at Bodin secondary school; 14, 4, 17 – are numbers depending on order they received during the data collection process; and "W" or "M" for the sex of the informant. The participants were assured of confidentiality with their answers and all conversations we made during the interviews. The participants were also informed that the study is ethically approved by the Norwegian center for research data (NSD) and how to contact me in case of any concerns or complaints.

4.4 Data analysis

The analysis of the data is the result of relationship between the theoretical framework of the study and the empirical data. This means that the process of analysing the empirical data may be done only with the consideration of the theoretical implications of the study. Berg and Howard (2012) states that the best way to analyse the qualitative data is content analysis. The scholars view the content analysis as a method in which researchers are able to examine "artifacts of social communication" such as textual data, interactions, discussions (Berg and Howard 2012, p.352).

Content analysis and coding the data have been followed in the analysis of this study. In order to analyse the content of the empirical findings I used the coding of semi-structured interviews. According to Berg and Howard (2012), the coding is an essential process in the context analysis of the qualitative data. This was done in order to investigate the diverse aspects of the empirical data simply and efficiently.

Berg and Howard (2012) highlight that the aim of the context analysis in the analysis of the qualitative data is to make a sense of data collected and to highlight the important findings. The large amount of information received from the qualitative interviews with respondents was carefully collected in detailed notes. Once all the interviews or notes have been written up and summarised, I considered developing codes to categorise respondents by their occupation to help future data analysis (8UNIW, 14BDVGSM). This furthermore helped me to distinguish specific trends and patterns in answers given by the participants of the study within six themes outlined in the Chapter 5 (A. Perception of nature; B. Consequences of climate change for Norway; C. Understandings of the climate change debate, etc.).

In the data analysis, I was looking for expressions that could be explained within the main theoretical framework of the thesis, the cultural theory of risk. Young people's perceptions of nature, their attitudes towards climate change and the outcomes each way of life associate with a certain action and responsibility led to a categorization of the data into four groups of the cultural theory of risk as fatalist, hierarchist, individualist and egalitarian. The categorization of the data was made when all interviews were completed to avoid forgetting things and leaving out necessary information.

4.5 Validity of research

Validity is one of the strengths of qualitative research and it means that the researcher checks for the accuracy of the findings by employing certain procedures (Gibbs 2007). To ensure the validity of the study the researcher achieve that findings are accurate from the standpoint of the researcher, the participant or the readers of an account by implying trustworthiness and credibility (Creswell 2009).

In order to ensure the validity of the thesis I provided rich and detailed descriptions of different steps and procedures of data collection process. This therefore contributed to complete developed structure of the thesis and offered many perspectives about the theme. According to Creswell (2009), the use of a rich and thick description to convey the findings contributes to more realistic and richer results and therefore add to the validity of the findings. In addition, the

sample size is important for ensuring research validity. The study sample was not large but appropriately sized to achieve reliable results of the qualitative research.

4.6 Limitations of the study

It is likely that young people's perceptions of climate change in northern Norway may differ from perceptions in other regions and communities in Norway. This therefore may influence generalizations of the study because the results and views represent young people's voices from one northern community and thus the experiences on the national level may differ to a large extent.

The sample of the study included seventeen participants that were chosen with the purposive and snowball sampling. Although the thesis indicated an approximately sized sample for the qualitative research, it is likely that the views presented in the thesis are to some extent limited by a sample size to a whole population of Bodø. Snowball sampling happened when some of interviewees recommended potential participants for a study who qualified to participate. Since the person recommended several other people who have the knowledge that I was looking for, there was a chance that some of interviewees were interested and thus more acknowledged with the climate problem than others. This therefore influenced the sample and the findings of the qualitative study.

The use of non-probability sampling allowed me to find young people from two high schools and the university in Bodø. Although both schools provided me a degree of flexibility in selection of interviewees, I found difficulty in making 18 years old young people interested in taking part in an interview. Professors had to introduce me in the classroom before the class in order to get attention from the pupils that furthermore allowed me to interview some of them. The majority of participants were very open in discussions but there were some that faced difficulty in discussing climate issues.

CHAPTER 5 EMPIRICAL FINDINGS

This chapter presents the empirical findings of the study. The empirical findings in this chapter are focused on the youth perspectives on climate change issue with the consideration of three broad dimensions outlined in the interview guide of the study: perception of environment, natural resources and climate change; the role of the individual in meeting climate change (actions on climate change; environmental behaviour); and the final, responsibility for climate change. Perceptions of respondents studied within three said dimensions provided me data to further identify respondents in the light of the cultural theory of risk group-grid typology. The discussion about analysis of the empirical findings in answering the main research question of the study takes place in chapter six. In addition, the presentation of differences between the groups of engaged, more environmentally interested youth in Natur og Ungdom, and non-engaged individuals takes place in the following chapter six, where the analysis is conducted. This chapter provides the summary of the findings from the empirical data collection phase.

The findings are hence categorized and presented in the following categories:

A. Perception of nature

B. Consequences of climate change for Norway

C. Understandings of the climate change debate

D. Responsibility and environmental behaviour

E. Barriers to individual action

F. Climate change leadership

5.1 Perception of nature

In Norway people feel a strong connection to nature. Norwegians spend weekends and holidays in nature and often time spent in nature is considered to be important for every family. The study by Arnold et al. (2016) highlight that Norway is often considered to be an environmentally friendly country which can afford "to heat streets and light hiking and skiing trails at night, to connect the remotest regions to infrastructure", while private houses are tend to be overly lighted and heated "to be cozy and warm" (p.43). The image of a country where people are used to have a high consumption standard of living and at the same time are tend to highly appreciate nature, creates duality in the perception of climate risk. There is a chance that ecologically friendly actions aimed to mitigate climate change can be perceived as unnecessary and as the result limit transformations to a low-emission future. The study by Arnold et al. (2016) added

that in the Norwegian context there is a clear chance of doubt among population in considering transformations to a low-emission society as salient, a room for further improvement can be limited due to existing believes in environmentally friendly country.

Perceptions of nature in Norwegian context are important in order to understand how people perceive climate change. The study by Joireman et al. (2010) explained it by saying that daily experience with local weather and environment have an impact on people's perceptions of nature in general, that can likely influence peoples' values and beliefs about climate change problem (Joireman et al. 2010). Since Norwegians have a strong outdoor and nature orientation (Arnold et al. 2016), their interactions with nature happens on daily basis, e.g. when going to work/university or having an evening walk or mountain hike close by their homes. The city of Bodø presents an interesting case because of its geographical closeness to the sea with a great number of outdoor parks, forests and mountains. Locals interact and experience nature every day, often calling Bodø the home for nature lovers. In order to investigate perceptions of global climate problem, I found it necessary to explore local perceptions of nature in the early stage of the interview process. I addition, I was also interested in knowing if young people see any benefits of natural resources such as water, minerals, air, energy resources in mitigating climate change or not.

The interviewees described the nature as something they are proud of. There was a clear evidence that they appreciate their homeland, its beautiful nature, clean water and air. Respondents said:

> *"Earlier this year I spent 4 months in India. I learned all these things that we usually take for granted in Norway there...air is so heavy in India because of the heat, but especially because of the pollution ... we couldn't drink a water from tape, but millions of Indians have only this water to drink ... I met a lot of young children who had rotten teeth because of the water. When I came back home to Norway, I realised how incredibly wonderful it was to be able to breathe clean, fresh air and drink clean water straight from the tape. I learned myself new things and first of all how better appreciate all we have here in Norway"* (9UNIW);

> *«Resources and the environment we have here in Norway, I believe is the best .... There is a strong focus on clean environment here»* (6UNIM);

"Oh…I appreciate a lot Norwegian nature, especially mountains and fresh air. The benefit of the climate in Norway is its balance in warm and cold days. We have summers with warm days and we have winters with snow". (8UNIW);

As observed from the statements above, the unique way in which Norwegians perceive their relationship with nature can be explained by daily interactions with the nature that take place at home, e.g. drinking water straight from the tap or in urban environments, e.g. enjoying time outdoors and getting the benefits of fresh air. The presence of clean water and fresh air along with the large number of mountains and forests are crucial in the formation of attitudes toward nature.

«We are also lucky because we have enough hydropower that can cover a level of our consumption…I think we have enough resources here in Norway that can help us to meet climate change problem. I'm actually more worried for those people, who lives in countries with limited resources or more vulnerable location than Norway…» (3UNIW).

Respondent 3UNIW outlined the importance of natural resources as the key to mitigate climate change problem and therefore to strengthen adaptive capacity of Norway. Hydropower capacity has been seen as promising against climate change impacts.

Recognising the advantage of the environment and natural recourses in Norway, respondents outlined the importance of approaching the best renewable energy solutions as alternatives to traditional sources of energy. They therefore mentioned wind, water and solar power as the best alternative to fossil fuels. The informant said:

«No way! *Norway should urgently invest into renewable energy production such as wind and sun, and of course, downsize the petroleum industry as much as possible! We have a lot of potential to do that!* » (3UNIW).

Renewable energy obtained from natural resources has been perceived as the possible key to combating climate change issue. Several of respondents were therefore very enthusiastic about thinking of renewable energy as one of the most effective tool in the fight against climate problem.

Common thing drawn from all respondents is that they perceive the environment and natural resources as beneficial. Respondents underlined the advantage of having a mild climate and rich natural resources when talking about adaptation to climate change. They shared

assumptions that their homeland will not be likely among the worst affected as in the case for many other countries, e.g. India. Interviewees showed a certain belief in country's high adaptive capacity, where the use of natural resources was perceived as crucial in building resilience to climate change. The perception of nature as being so diverse, beautiful and unique has been presented in many answers, respondents underlined its crucial importance in creating balanced modern life.

5.2 Consequences of climate change for Norway

When asked about the consequences of climate change for Norway, the informants related it to the risk of having more precipitation, more extreme weather events. A general pattern across the respondents was the frequent reference of climate change to changes in weather, its temperature. Most of participants noted changes in seasons, saying that summers are getting warmer in Bodø while winters receive more rain. Some of informants reflected upon the possibility of changes in the industry structures e.g. farming, fishery, transport sector (9INIW, 3UNIW). Informants perceived consequences of changes in the natural environment of northern part of Norway as frightening, underlining dependence of northern communities on fish stocks and farming. "*I do not know much about consequences, but here in the North the fishing industry is so important and I guess any changes in climate will likely affect it…*", respondent 7UNIM said.

Changes in the natural environment will have consequences for Arctic ice conditions. When it comes to a risk of changes in the ice extent in the future, respondents expected that this will lead to increased pessimistic, worried feeling:

> «*Yes, I am worried. Warmer temperatures will cause melting of ice and then what…the sea level rise and in this case, we need to deal with fatal consequences…huge migration movements will appear because many areas will not be habitable*.» (6UNIM);

> «*When we discuss consequences of global warming, I often think about melting ice in the Arctic. So often I see pictures of polar bears standing on a small ice floe…because the temperature is increasing, the ice coverage is melting…*» (9UNIW);

Statements above were more global in scope, where respondent linked climate change risk to indirect consequences of climate change such as migration. Respondents regarded the consequence of changing climate to a probability that Norwegian nation must be prepared to receive huge immigration wave, refugees from much larger affected countries in the south.

Respondent 6UNIW showed a certain degree of worry, saying that the need to ensure people living in certain areas affected by the sea level rise will become urgent because of climate change, "*the risk of living there will become too high*", respondent 9UNIW said. Indirect consequences have been seen as global drivers of climate change affecting the future in the North.

When it comes to changes in snow conditions, all respondents regarded it as a likely extremely negative consequence for their country and the environment. Bringing a possibility of approaching extreme scenario followed active responses from participants. Respondents linked it to a catastrophic scenario, underlining the importance of snow for nature: "*We, Norwegians are born with skies on our feet. I can't imagine life without snow here in the north*", said respondent (10UNIW). The respondent foresaw that changes in climate can likely affect how much snow falls that will affect northern regions, its ski culture. Perception of nature has been linked with the perception of use of the natural environment for sport activities.

Other respondents added:

> «*I remember when I was a child snow normally came in November...the snow was quite thick and we had it until Easter. Now we often experience quite warm temperatures in winter and snow appears much later…this is really scary*» (9UNIW);

> "*Not being able to go skiing will have a big negative consequence for our culture…and personally it will be a big disappointment to me. We are known for unique ski-culture here in Norway. If all snow disappear, it will be a very negative, actually dramatic consequence for the Norwegian culture and sport*» (6 UNIM);

> «*I am not a skier myself, but agree that it is an important part of our culture. It will be difficult or even impossible to be the "new" Petter Northug or Marit Bjørgen, if the next generation does not get any snow. I find it a bit scary that the weather has changed so drastically....I'm only 21 years old, but I have already noticed some changes in the last few years*» (9UNIW);

Statements above showed a high degree of awareness, often underlining the meaning of snow for the Norwegian culture. Respondents foresaw that ski industry will directly suffer from the loss of snow cover and expected that this will lead to increased national loss. If nothing is done to stop climate change, it will probably bring dramatic consequences for the Norwegian culture and sport. Informants stated out being sceptic about Norway's capability in developing ski culture and sport for the upcoming generations.

«Yes, I would say that I am quite worried about the future climate. If I cannot go skiing or snowboarding in the future, I will be very-very sad, and I hope so much that it will not happen. Moreover, it is very scary to think if all snow is gone. Furthermore, what will our children/grandchildren say about us, if we could not manage to find a right solution? How will they think about us, if we failed to take better care of our planet?" (7UNIM).

Discussion on the importance of climate change problem followed in the next interview part. The issue of climate change was perceived as of secondary importance. Respondents said that climate issue cannot be their priority issue, regarding other problems as more salient, e.g. problems at school, university, home, etc. They said:

«...do not think it can be a priority issue to me and I don't think it will be in the next 50-60 years, I think we are talking about the longer term. Much larger challenge is awaiting my grandson» (6UNIM);

«It is perhaps an important issue, but I'm unsure if it's going to affect me negatively during my entire life ... it gets worse for those who come after me, the next generation» (2UNIW).

In sum, the majority of the informants showed awareness on climate change and its risks, but underlined that climate change is not their priority in everyday life. Most of the informants see climate change as the issue that may cause dramatic consequences in the future, affecting life of their children. One informant in regard to this said:

«...it's scary to think about how the life of my children, grandchildren, etc. may be affected by the issue of climate change. I am afraid that it eventually will become impossible to live on the planet (also because of food problem and huge migrations).» (9UNIW)

There was a clear agreement among respondents that climate change poses a fundamental threat to the nature, places and people. In contrast to quite optimistic perceptions given in the part discussing natural resources and environment, respondents showed awareness about climate change risk and its consequences for the High North, underlining dependence of Nordland county on primary sectors such as forestry, fisheries and farming. The study by Dannevig and Hovelsrud (2016) explained it by saying, that northern communities are reliant on climate sensitive resources, where fisheries and associated industries remain the cornerstones.

5.3 Understandings of the climate change debate

Discussions on climate change with young people began by exploring the kinds of sources of information that informants use in their daily life. In all interviews the respondents mentioned the media as their general source of information. More specifically, they mentioned internet, newspapers and blogs. Printed newspapers were perceived as outdated source of information, however some of informants mentioned the practice of a month subscription for newspapers at home. The study by Ryghaug et al. (2010) noted a common pattern among all Norwegians saying that they spend 29 minutes on an average day reading newspapers with about 60 per cent reading and watching news on television and internet (p.7).

When bringing the issue of climate change into discussion, four of respondents noted that they don't hear about climate change frequently in the media. «*It is not so much in the media now ... it lacks quality*», said the respondent 2UNIW, while the most common answer among respondents was "*nja..not often*" (5UNIW, 13BDVGSW, 17BNVGSW). The majority of respondents underlined the importance of public debate about climate change, saying "*this is a subject that will be always debatable, the topic that will always be relevant. It is therefore important that this can be discussed at all levels*» (7UNIM); laying stress on debate that focuses on finding solutions for climate change:

> «*Hm, I personally think the public debate on climate change has improved. From being a matter of climate change, it is now a question of which solutions are best and what role Norway has in the debate on climate issue*» (3UNIW).

In addition, some of respondents underlined lack of neutral information on the global climate debate. Respondents perceived climate change as a rather frightening event that makes them worry about nature, peoples and places. They said:

> «*When I hear the word climate change, I think straight away about changing weather and temperature .... worse summers and winters.* » (6UNIM)

> «*Warmer weather, introduction of new species, extinction of others and large changes in the ecosystem, etc...* (2UNIW)

In contrast, there was one respondent that said:

> «*Klimakamp! Climate Activism! That's what I think when I hear the word climate change. As engaged in various environmental movements, I have many positive experiences with just this, for instance, when we were 200 students at the Labour Party congress to get them to say no to oil drilling in Lofoten, Vesterålen and Senja. I am also thinking of the*

enormous research effort that lie behind the concerns of climate change, in addition to the possibilities we have and ways we have to choose.» (10UNIW)

The respondent accepted climate change as reality and instead of mentioning its dramatic impact on the planet, stated that the debate about climate change creates new opportunities for political activism of youth and new research opportunities. The interviewee underlined that young activism and engagement plays a crucial role in transformations to a low-emission future.

Those examples illustrate how the possibility to engage with climate change on short-term future can be postponed due to ignoring its evidence in present time. In general, the participants presented the long-term thinking about the way the world's climate might be changing. Taking long-term decisions require actions. In order to find out which actions respondents see as important in mitigating climate change, I moved to the next part which covers perception of the role of individual in meeting climate change.

5.4 Responsibility and environmental behaviour

The next section of the findings brings the individual in meeting climate change, by focusing on studying youth's relation to climate problem, questioning the role of environmentally friendly actions in everyday life of respondents.

In the debate about climate change it is quite often discussed who has the responsibility to stop or reduce greenhouse emissions to safer levels. "Consume less", "think green when making purchases", "buy less stuff", - those are the headliners from newspapers around the world that influence peoples' perceptions of low-emission technologies and transformations. Discussing the impact of high consumption society as Norway on climate change, respondents questioned responsibility in reducing greenhouse emissions. Thus, the respondent 6UNIM said:

> *«...we are responsible for it, as we are actually emitting so enormously much CO2 and throwing an enormous amount of garbage, in places where garbage should not be placed at all! We are polluting and destroying the nature. Only all together we are able to find a solution, the best for the climate and with the implementation of right laws and rules can combat the climate change»* (6UNIM).

The informant underlined the importance of joint effort in meeting climate change right after the question has been asked. In the same tone answered the respondent 7UNIM. He said:

«...we all people have a responsibility to meet the climate change. It is important that politicians are concerned about this and are in charge of action, but whether or not the population is in change too…I think politicians do so little. We all people have a responsibility when it comes to climate problem.» (7UNIM)

The statements above underlined the importance of the collaborative effort in dealing with climate issue. Individualistic perspective has been perceived as pointless. However, I included the direct question on the individual responsibility in meeting climate change into the interview guide, informants could not provide me a direct answer, often underlining the collaborative effort to the individualistic one. They said:

"Everyone in society is responsible, the responsibility lies on each of us and we should act together. If one big country burns fossil fuels, another cannot take all responsibility. Only common effort can help. We should respect and care about each other." (14BDVGSW);

The respondent 14BDVGSW was clear about that the collaborative effort and its crucial role in mitigating climate change. At the same time, the informant stressed that all countries are responsible for developing measures to stop climate change and its consequences.

In the same tone answered the respondent 10UNIW:

«...no, not me alone, we all have a responsibility to improve the climate. I also think that experience of countries like Norway, can help to develop better green solutions worldwide. As being an oil nation, Norway has also participated in the creation of climate change problem, therefore we have a responsibility to find solutions and implement measures for the world» (10UNIW).

The informant 3UNIW argued the role of state initiatives to promote sustainable lifestyle and ensure environmentally-friendly alternatives to private transport. She said:

«...hm, I think the government must promote it in a society that the climate-friendly actions are the best actions we can take, for instance, by making public transport cheaper and more efficient so that we don't need cars» (3UNIW);

Some interviewees argued that there is a lot each of us can do about climate change in daily life that can further promote collaborative transformation to a low-emission future. They named the following actions which they practice:

«I usually walk or bike; recycle garbage…also prefer private bags rather than plastic bags at the store. Maybe I can also motivate my neighbor to practice recycling?» (6UNIM);

«…prefer to take a bus or walk, do not throw so much food and cook more vegetarian for dinner » (9UNIW);

"Actions: I take public transport, eat less meat than before, do not use much electricity and try to recycle as much as I can…even though sometimes I can be lazy to do it." (14BDVGSW)

«Bicycling, taking public transportation, sorting garbage, etc. » (2UNIW);

«Hm…I'm trying to sort garbage properly, public transport (a win-win situation: cheaper transport and this is good for the climate). I also send a small amount of money for the Rainforest Foundation. When I'm going to buy a car, I will prefer an environmentally friendly car (e.g. electric car)" (7UNIM).

Respondents acknowledged that climate change is a common concern of humankind and underlined the importance of a joint effort to stop or reduce greenhouse emissions to safer levels. This is interesting that empirical findings showed that young people believe in the collaborative effort as much as individual, often saying that there are many things that each of us can do. Informants underlined the importance of both collaborative and individual efforts to adapt to changing climate. Majority of the respondents were familiar with basic set of environmentally friendly activities and noted that they try to perform those activities at home.

5.5 Barriers to individual action

In addition, informants listed issues that they see as preventing them to maintain environmentally friendly lifestyle. The discussion around barriers to individual responsibility has been mostly constructed around economical dimension. Consideration of financial barriers among informants may be furthermore explained by the fact that many students experience financial barriers that limit their spending activity.

Some respondents listed financial problem as the most common limiting factor in approaching environmentally friendly lifestyle. Respondent 7UNIM said:

«I would be happy to eat more environmentally friendly to name a few of environmentally friendly activities I practice. First of all, the problem is that the environmentally-friendly solutions are either too expensive or too little available».

In addition, respondents argued that there is unreasonably high pricing for public transportation in Norway, e.g. in the city of Bodø. Respondent 8UNIW added that she would prefer "*to drive her car less often*", but in order to save money for her family by not buying expensive bus tickers for each, she does not have another choice than driving a car. "*Price for the bus ticket in Bodø is way too high*", - mentioned the respondent 8UNIW.

Some interviewees said, that quite often student housing does not provide enough space and equipment to keep recycling bags at student apartments and that it would be challenging to buy recycle bags due to financial issues, "*sorter not garbage - staying in student flat and do not have extra money…*".

Respondents addressed the dilemma that serve as a limiting factor in choosing ecologically friendly possibilities. If a price for public transport is high, it is likely that not many would consider it as a choice for transportation on daily basis. Young people quite often experience limited financial resources, they have to make their choices rationally and cost-effective. On the other hand, if there is affordable pricing for environmentally-friendly solutions, more people will be interested to consider them as salient in their life.

5.6 Climate change leadership

The responsibilities for climate change fall on many shoulders, from personal responsibility through the daily choices we make to collaborative efforts of countries, nations. I was therefore interested to see if young people consider some institutions (government, countries, etc.) to have a larger responsibility in combating climate change and whom they consider as the most appropriate leader.

Climate change leadership is often discussed in media. The question on how countries can address climate change involves the interaction between different actors such as individuals, governments, policy-makers, scientists, they are all involved in the process of finding better low-emission solutions. I therefore brought the question on climate change leadership into discussion in order to explore the degree to which young people perceive the role of young individuals or government as salient in the fight against climate change.

When asked about the Paris climate summit 2015 (the conference COP21) and particularity the message that has been written on t-shirts worn by youth delegates around the conference, the informants were clear agree on the statement. They claimed that young generation has a responsibility in mitigating climate change. Thus, the informants said:

«*Yes, this is us, all young people, we are in charge over decisions for better future*» (7UNIM);

"*Yes and YES - our generation plays an important role*!" (1UNIM);

«*We must act now to stop climate change*» (3UNIW);

Some of the interviewees expressed duality in their perceptions of responsibility for climate change. The interviewee 10UNIW stressed that the responsibilities for climate change fall on shoulders of individuals in addition to collaborative efforts of countries, nations. She underlined that collaborative effort of all nations can enforce the necessary action on climate change.

"*I totally agree that we, young people, must take actions now to mitigate climate change. The Paris meeting highlighted it totally right. By "we" I also mean other countries who are responsible for greenhouse gas emissions, e.g. the USA, China, the EU and Norway. It is not enough that people, all those environmental idealists recycle and consume less, nations all over world must find the better solution and invest into environmentally friendly alternatives for transportation, food and clothing*, etc.*»* (10UNIW);

Moreover, bringing the COP21 message, provided new dimensions into discussion. Some of the interviews addressed the dilemma of the consequences after Paris agreement has been signed, questioning benefits of that event. Some of respondents were quite sceptical about the real opportunity of countries to keep the global warming below two degrees set by the Paris agreement.

The concluding section of the interview involved the question on the perception of the government's role on leading response to climate change. The group of informants was divided between two dimensions, whether the authorities are doing good or not enough in preventing climate change. Informants claimed that:

«*Norwegian authorities are trying good enough in dealing with climate change problem…I think it is happening within a great number of measures*» (6UNIM);

"*Norwegian government is doing quite good. We have an idea, we are doing quite well. I think we can reach that goal.*" (1UNIM);

«Norwegian government is playing important role. Many nations look to Norway as a good example, it is so important that we are engaged in environmental issues» (7UNIM);

There were opinions that the Norwegian government is working and doing good to adapt to the effects of climate change and reduce greenhouse gas emissions by investing in low-emission technologies. On the other hand, some of respondents claimed that the government is not doing enough so that the citizens do not see the political action. They said:

«Authorities would like to be greener...but they think most of the money» (2UNIW);

«I think politics plays an important role, but politicians do little unless people will (at least here in Norway). The authorities should of course lead the way, but they don't do it here in Norway without a certain pressure from environmental organizations» (10UNIW);

«Norwegian government is doing not enough...I do not think they can handle this problem alone» (15BNVGSW);

"Hmmm...I think they try, but they prioritise economical perspectives to environment" (17BNVGSW);

There were more female respondents who provided a notable degree of scepticism about the state leadership on climate change. The male interviewees believed that Norwegian government has a basic responsibility to reduce greenhouse emissions but were nevertheless optimistic on behalf of authority's ability to combat climate change. Female respondents often expressed willingness to obtain more neutral and objective information on climate issue, not influenced by political discussion. *«I feel I know the basics…but it would not be bad to know more about it, e.g. which actions we can do daily, that will not be influenced by the authorities»*, the respondent 6UNIM said.

The informants displayed a quite various thinking on the climate change leadership. The majority of respondents agreed on the responsibility of everyone in mitigating climate change, in addition to the actions undertaken on the national level. All groups of respondents highlighted the role of young people in mitigating climate change through the daily choices which can furthermore enforce the collective action on climate change. In addition, the empirical findings showed the presence of gender-based distinctions in the perception of climate change leadership.

CHAPTER 6 ANALYSIS OF THE FINDINGS

This chapter analyzes different aspects of the findings in accordance with the theoretical framework applied. Section 6.1 accounts for the main findings related to six dimensions outlined in the chapter five. Here I discuss perceptions that I found in the different groups of respondents and point out in what respect those perceptions varied in accordance to the category of respondent (University, Secondary school (Bodø VGS or Bodin VGS), engaged and not-engaged individual). Section 6.2 investigates the findings in the light of the cultural theory of risk, as it examines what implication the respondents' climate perceptions had for the process of pre-screening four competing worldviews outlined in the main theoretical framework of the study. This section further discusses the way in which cultural worldviews impact the current treatments of climate change problem and climate change mitigation decision making. In both sections I also discuss possible explanations for distinctions in the perceptions given by respondents. Section 6.3 concludes with the discussion.

6.1 Analysis of the findings within categories

The empirical findings of the study presented diversity in young people's attitudes towards several aspects of climate change including perceptions of its consequences, responsibility in meeting climate problem, environmental behaviour and possible barriers. Examples of identified findings are given in Table 2. The six categories outlined in the Chapter five enabled a categorisation in terms of cultural theory of risk. Table 2 below presents the findings with the consideration of the group of informants, six dimensions and pre-screened ways of life in the light of the cultural theory of risk. In the Table 2 I summarize the similarities found in general perceptions given by the participants of the study and highlight potential differences. I also outline the number of pre-screened informants in accordance to their "way of life" explained within the grid-group typology of the CTR. I found that the group of informants from the "University" consists of five pre-screened hierarchists, four egalitarians and two fatalists; the group from the Bodin high school consists of three egalitarians and so on.

Table 2 The observed findings across groups of respondents

Groups of informants	A. Perception of nature	B. Consequences of CC	C. Understanding the CC	D. Responsibility	E. Barriers	F. Climate change leadership (state vs. individuals)	Way of life; (n) – number of pre-screened respondents
University (11)	Nature as something they are proud of	More precipitation, more extreme weather events	Changes in precipitation (more rainy days in winter)	Individual and collaborative effort	Financial, practical and personal barriers	Equally important; look to state regulations	*Hierarchists* (5): "Norwegian government is playing a crucial role in mitigating CC" *Egalitarians* (4): "Democratic approach, all humans can make a change" *Fatalists* (2): "Climate is way unpredictable, it's too late to change the future"
Bodin VGS (3)	Nature as beneficial in meeting CC	Melting of ice, warmer temperatures	Changes in weather, its temperature	Individual and collaborative effort	Financial and personal barriers	Equally important	*Egalitarians* (3): "Responsibility lies on everyone; collaborative effort"
Bodø VGS (3)	Taking nature for granted in Norway	More extreme weather, life without snow, ice melting at the poles	Changes in weather, its temperature	Individual and collaborative effort	Financial and personal barriers	Individuals but to the larger extent the state regulations	*Hierarchists* (2): "Politics and the government are the first ones" *Egalitarians* (1): "Young generation plays an important role; climate-friendly actions necessary"
Engaged NU (5)	Use renewable energy obtained from natural resources	Precipitation, extreme weather events, changes in the industry structures e.g. farming, fishery	Changes in weather; climate activism; searching best climate-neutral solutions and possibilities	Individual and collaborative effort; crucial role of pro-environmental organizations (NU)	No barriers	Equally important	*Egalitarians* (3): "Young generation plays an important role; climate-friendly actions necessary" *Hierarchists* (2): "Governments all over the world must invest into environmentally-friendly future; importance of state initiative"
Not-engaged (12)	The balance between humans and nature	Do not know much about consequences	Changes in weather, its temperature	Individual and collaborative effort	Financial and personal barriers	Equally important; look to state regulations	Hierarchists (5): "Norwegian government is playing a crucial role in mitigating CC" Egalitarians (5): "Decisions should be taken following open debate" Fatalist (2): "Climate is way unpredictable, it's too late to change the future"

6.1.1 The link between perception of nature and climate change

As stated in chapter five, perceptions of nature play an important role in understanding how people perceive climate change. Daily experience with local weather and environment have an impact on people's perceptions of nature, that therefore influence their values and beliefs about climate change problem (Joireman et al. 2010).

As we can see from the Table 2, all respondents of the study acknowledged environment and natural resources as beneficial when talking about changing weather conditions in Norway. All groups of informants identified nature as "something they are proud of". In addition, the group of more environmentally interested youth (engaged in Natur og Ungdom) considered

Norwegian environment and natural resources as a tool for mitigating climate change, where renewable energy obtained from natural resources was perceived as a contributing factor to country's resilience and wellbeing. All groups of respondents outlined the relatively cold climate in their country and perceived it as beneficial in meeting climate change. Ryghaug explains it by saying that the relatively cold climate contributes to a widespread popular perception of Norway's resilience to climate change, while the natural resources (hydroelectric resources) produces the appreciation of access to relatively cheap renewable energy (Ryghaug 2010). The empirical findings highlighted that young people show beliefs in their country's resilience, often arguing for its closeness to the Arctic and relatively cold climate.

The empirical findings illustrated that all group of informants outlined the advantage of nature and natural resources of Norway in meeting climate change. This finding therefore supports the qualitative study conducted by Marianne Ryghaug (2010), where she found that sense-making with respect to climate change may be influenced by widespread opportunistic perceptions of Norwegian natural resources. This could in turn tempt Norwegians citizens to be sceptical of the impacts of climate change consequences (Marianne Ryghaug 2010, p.1). The analysis of the findings revealed that perceptions of nature as being so diverse and beautiful were correlated with beliefs in Norway's readiness for climate change with good capacities to deal with the potential climate risks. I observed that benefits of nature in meeting the climate risk were often exaggerated in responses given by informants. They argued that the level of readiness for climate change is greater for Norway than for other countries such as India because of country's relatively cold climate, geographical position, natural resources and high-tech capacities.

The findings outlined that the climate problem was perceived as being of secondary importance throughout the discussions about Norway's natural riches (environment, natural resources, etc.). One critical factor likely to influence individual's perceptions of climate issue is the degree of connection or attachment to nature that people have in Norway. Attachment to a natural landscape and the environment among Norwegians is thus likely to be an important influence on their livelihoods and their response to a large-scale change as climate change. In general, the degree of attachment that young individuals have to nature, including their relations to resources that exist within it, may influence their perceptions of risk. The study by Marshall et al. (2012) added that the degree of attachment may enhance the capacity of individuals or "resource users" to adapt to a change in their local community, and can furthermore motivate individuals to identify solutions and create a sustainable future (p.4). I found that respondent's

attachment to the Norwegian nature influenced their beliefs about climate change. This is in line with Amundsen (2012), arguing that the attachment to natural environment shapes people's commitment to respond to the challenges facing their local community.

Young people's perceptions of the major consequences and effects of climate risk on a global scale provided different perspective. In general, the climate problem was acknowledged as salient among all groups of respondents when bringing the consequences of climate change into discussion (see Table 2). I observed a high level of climate change awareness among the respondents, there was an agreement that the climate risk poses a fundamental threat to the nature, places and people. Ryghaug (2010) explains it by saying that a clear majority of people see the climate change as a rather frightening scenario on a global scale, that makes them feel worry about the prospects for the planet and the living conditions of future generations.

6.1.2 The connection between the level of engagement and knowledge

In addition, the thesis found the connection between the level of engagement and knowledge. Engagement has been defined as a "personal state of connection" with the climate change through the practical actions as the membership in Natur og Ungdom (Wolf and Moser 2011, p.4). Corner et al. (2014) highlighted the influence environmental organisations such as Greenpeace and Friends of the Earth have had in framing the climate change issue within certain cultural values and knowledge. The group of respondents engaged in Natur og Ungdom provided wide knowledge and understanding of the consequences of climate change. They seemed to be aware of the impact climate change may have on the northern communities, outlining a high degree of reliance on fish stocks and farming in the north. On the other hand, the group of not-engaged individuals knew less about the potential future effects of global climate change. The study by Wolf and Moser (2011) explains it by saying that the knowledge alone is not enough to motivate and shape effective mitigation actions on climate problem. The action on climate change is likely depend on both public engagement and the knowledge of climate change.

The thesis revealed that perceptions of risk given by a random young individual differ from those given by the more environmentally interested youth in Natur og Ungdom. Those engaged in Natur and Ungdom knew more about the impacts of climate change and argued that there is a lot each of us can do about the climate issue in daily life that can further promote collaborative transformation to a low-emission future. This group of respondents considered the collaboration

between the individuals and the government as the most appropriate in combating climate change. The study by Gardner and Stern (2002) discussed the role of knowledge in understanding and maintaining environmental problems. The authors state that human behavior is influenced by the knowledge, beliefs and attitudes to change behavior in the way that would benefit the environment and motivate people to take cognitive and affective variables into account (Gardner and Stern 2002, p.9). The findings supports this argument as the level of engagement and knowledge reflect young people's commitment to take actions that can further promote social transformations to a low-emission future.

6.1.3 Making sense of climate change

The most common pattern across the groups of respondents was the mentions of the consequences and effects of climate change when discussing the concept, such as changes in weather, its temperature, more extreme weather events (see Table 2). The findings showed that all groups of informants identified the climate change as a rather frightening event that makes them worry about nature, peoples and places. The study by Ryghaug (2010) explains it by saying that the media influence people perceptions of climate risk and a widespread use of frightening scenarios by the media makes people feel more worried (p.7). The perception of climate change given by the more environmentally interested youth appeared as interesting finding of the study (see Table 2). The concept of climate change has been perceived as the issue which creates opportunities for political activism of youth in contrast to generally negative perceptions given by respondents of the study. This finding is in line with Wolf and Moser (2011) as they underline the connection between the level of engagement and the knowledge on climate issue. The authors state that the engaged individual is more knowledgeable about climate change and thus, can develop new perspectives on the understanding of climate issue.

The findings showed that the concept of climate change was often perceived through young people's reactions on possible impacts of future climate change, giving little attention to causes of the change and the concept itself. The concept of climate change in itself is quite muddled and can therefore mean different things to different people. In addition, as stated by Ryghaug (2010), different sources of information and knowledge may influence interpretations of climate change issue and thus create complexity in understanding the concept. This can be furthermore explained by the impact of media on young people understanding of the issue and the role of the media in framing debates around the climate change. The empirical data showed that young people rely on the media as the main source in their sense-making processes and

agree on the trustworthiness of news media in Norway. In contrast the study by Arnold et al. (2016) found that the social media in France are identified as a "major vector" for the dissemination of climate scepticism, which creates a certain complexity in recognizing the climate change problem by the public (p.29)

Many scholars underlined that the media in general appear to be an important learning platform where climate change coverage may make a person more aware of the climate problem or develop climate scepticism (Arnold et al. 2016; Lowe et al 2006; Ryghaug and Skjølsvold 2016; Ryghaug 2010). They argued about way in which newspapers, internet, blogs, etc. frame climate change problem in order to get attention often creates complexity around the image of climate change. The study by Ryghaug et al. (2010) explained it by saying that the media plays an important role in the sense-making of climate problem in Norway and media coverage often reference to changes in nature, catastrophic scenarios of climate change. Thus, young people learn a lot about severe consequences of climate change from the media that furthermore influence their perceptions of the problem, e.g. melting of the polar ice, extreme weather, more serious changes in weather. I observed this pattern in answers given within all groups of the respondents. The study by Lowe et al. (2006) explained the widespread use of catastrophic scenarios in the media by underlying the observed effect which influences people's attitudes towards climate problem, that furthermore make them anxious and lead to the acceptance of climate change as a reality (Ryghaug et al. 2010, p.7).

6.1.4 Responsibility and behaviour

What appeared as interesting result of the empirical research is that informants underlined the importance of both collaborative and individual efforts in mitigating climate change (see Table 2). Many of the informants stressed that there is a lot one can do through conscious environmental behaviour in a country such as Norway. At the same time, young people highlighted the need of a massive collaborative effort towards reducing greenhouse emissions. This indicates that young Norwegians feel themselves powerful in the face of changing climate and besides engaging into environmentally friendly activities on the individual level, they support collective effort towards a low-emission future at both the local and national level. The respondents devoted specific attention to the way individual and collective responsibilities relate to each other, underlining the interdependent character of both.

However young Norwegians showed a high degree of interest in maintaining environmentally friendly lifestyle, the study outlined some issues such as financial constraints that young people perceive as key barriers to individual responsibility in meeting climate change. The empirical findings showed that the environmentally friendly lifestyle in terms of practice has been perceived as partly limited. The study highlighted the dilemma: becoming environmentally friendly means having a lifestyle that is better for the environment, but at the same time environmentally friendly choices may be limited by a set of factors such as financial, social and individual. The thesis suggests that it is necessary to make eco-friendly practices more affordable in order to foster young people's motivations in choosing better solutions and services such as cheaper public transport. Perceptions of respondents underlined the importance of collective solutions on climate change such as recycling stations at schools and universities.

The analysis of the findings showed that the environmental responses among young Norwegians are often shaped by constraints such as financial and technical that result in the need to make eco-friendly practices and choices more affordable.

6.1.5 Climate change leadership

The empirical findings outlined in chapter five of the study found specific feature in perceptions of the responsibility in mitigating climate change given by respondents. The roles of the government and the individual in leading response to climate change have been perceived as equally important. Respondents outlined the importance of both the state and the individual responses in order to prevent dangerous effects and consequences of the climate problem (see Table 2).

What appeared as interesting is that the group of respondents from Bodø VGS (see Table 2) showed a higher level of trust in the government's role on leading response to climate change. Their perceptions highlighted the role of the government in finding best solutions for the future. It seems reasonable to assume that knowledge about climate science and climate policy among this group of respondents is appropriated from the media coverage that influenced their perceptions. The role of the media and the internet in relation to people's attitudes towards political courses and their political participation has been the focus of several scholars (Bakker and Vreese 2011; Boulianne 2009; Lowe et al. 2006; Ryghaug 2010). The authors underlined the role media play in affecting engagement among the public. Boulianne (2009) states that the effect of the media use on engagement of individuals is increasing across time (p.200). The

study by Ryghaug (2010) argue that there are political and economic interest groups that may exercise their influence through the media, which may also influence how the climate change problem is debated by other institutions, such as parliaments (p.2). Thus, it is argued that public perceptions of the climate issue to some extent rely to the knowledge about climate science and climate policy appropriated from media coverage. The thesis outlined that young people use the various sources on the internet as the source of knowledge about climate science and climate policy. These internet sources are likely to influence their attitudes and perceptions of the climate problem and how it is portrayed in global and local media.

In addition, the group of more environmentally interested youth view climate change leadership as a high degree of collaboration between the politicians and pro-environmental organizations. It is likely that the engagement of respondents in organisations and their individual beliefs led to this finding. However, the finding contrasts with the current trend in the relation between the Norwegian government and the largest youth-led environmental organization in Norway "Natur og Ungdom" that can be described as being confrontational. Several media outlets have recently published a big scope of news articles on that young people filed a constitutional climate lawsuit against the Norwegian government for allowing oil companies to drill for new oil in the Arctic Barents Sea, such media sources as Natur og Ungdom, VG and NRK (Bjørnbakk 2016; Eiterjord 2016; Krekling 2017). Young people are arguing for the global climate agreement signed in Paris in 2015 and protesting the Arctic oil drilling (Krekling 2017). Although the Norwegian media writes a lot about youth around the world taking actions against their governments, the findings of my study showed a different perspective on the relations between the government and the environmental organizations. More environmentally interested youth from Natur og Ungdom highlighted the importance of balance between the state and pro-environmental organizations in mitigating climate change. According to Saidel (1991), there exist the relationship in terms of the dependence of governmental and nongovernmental actors such as pro-environmental organisations on each other for resources and their resulting interdependence. This may explain trend in responses given by young Norwegian for equally supporting the government and the nongovernmental actors to address climate change.

It is likely that among the reasons for young people's perceptions of the climate change leadership in equal measure lies the democratic principle which is highly recognized in the Norwegian society. The values of democracy, open society and respect for human rights lies in the core of the Norwegian society. The study of Arnold et al. (2016) highlighted the fact that

the level of trust in the government is much stronger in Norway than in many other countries (p.44). This therefore explains the democratic pattern found in perceptions given by young Norwegians. The involvement of the state and individuals is perceived as crucial in order to cut greenhouse emissions nationally and furthermore, globally. There was a widespread consensus among the respondents of the study that equal degree of collaboration between the government and the citizens is crucial for effective climate change leadership at national, local and individual levels.

6.2 Findings in the light of cultural theory of risk

As stated in chapter three, the assumption behind the involvement of cultural theory of risk is that it helps to explore how institutional cultures frame risks differently and how those different framings create "respective voices about climate change risks and responses in various public forums" (Mcneeley and Lazrus 2014, p.507).

By drawing on concepts from the cultural theory of risk (CTR), the thesis analyzed the divergence in perceptions and responses on climate change issue. The perception of climate risk was analysed according to four sense-making processes or competing worldviews outlined in the study by Douglas and Wildavsky (1982) (see Table 3). Different perceptions of climate change risks are found among young individuals in northern Norway: some of respondents were categorised to the *fatalist* (perceive nature as lottery; regard any actions on addressing the problem of climate change as hopeless), the *individualist* (perceive nature as resilient; tend to focus on their own wellbeing), the *hierarchist* (they underline tolerance of nature, tend to trust the state and accept rules) and the *egalitarian* (see nature as vulnerable; are suspicious to anyone in authority).

From the point of the various interpretations of nature with respect to how knowledge of climate change has been perceived, accepted and acted upon, Table 3 below presents the categorization of respondents that was made in the light of the CTR grid-group typology. All respondents are categorized with the use of coding such as 1UNIM in the group of egalitarians and presented in the green boxes on the top of each category (see Table 3).

Table 3 Data interpretation in the light of the CTR (O'Riordan and Jordan 1999), adapted by Bobina

<table>
<tr>
<td>

2UNIW; 4UNIW

FATALIST

- Nature is a lottery, capricious
- Climate as fundamentally random and unpredictable
- «...climate change is a fact that we, humans, are not able to stop because it's too late» (Resp.2UNIW)

</td>
<td>

3UNIW; 5UNIW; 6UNIM; 7UNIM; 9UNIW; 13BDVGSW; 14BDVGSW;

HIERARCHISTS

- Nature is tolerant if threated with care
- Climate as manageable and tolerant of human influence
- Look to state regulations and trust climate scientists
- «Norwegian government is playing a crucial role» (Resp.9UNIW)

</td>
</tr>
<tr>
<td>

INDIVIDUALISTS

- Nature is resilient
- Climate as naturally variable, humans cannot change this natural process
- Preferring instead personal responsibility for any actions

None

</td>
<td>

EGALITARIANS

- Nature is vulnerable; the balance between nature and humans is vital
- Tend to be true democrats, decisions should be taken following open and frank debate
- «...this is us, all humans, who has the responsibility to find a decision on how to stop changing climate» (Resp.10UNIW)

1UNIM; 8UNIW; 10UNIW 11UNIW; 12BDVGSM;15BNVGSW;16BNVGSM; 17BNVGSW

</td>
</tr>
</table>

The degree to which climate change risk has been perceived as salient and the analysis of the empirical data developed in chapter five served me the link to further pre-screen respondents in four ways of life: fatalist, hierarchist, individualist and egalitarian (see Table 3). The analysis of the findings in the light of the cultural theory of risk explains how youth perceptions of climate change may develop incentives to consider climate problem as salient and furthermore, foster individual's willingness to transform to a low-emission society.

In accordance with the perceptions given on the six broad categories outlined in chapter five of thesis, the study found four typical responses, ways of life which corresponds to the fatalist, the hierarchist, the individualist and the egalitarian type of the CTR group-grid typology. The study furthermore developed four main categories which differ to a small extent from the original CTR archetypes presented in the chapter three of the study. The classical cultural theory of risk grid-group typology adopted from the study by O'Riordan and Jordan (1999) corresponds to

the perceptions of nature and responses about the responsibility in meeting climate risk given within four main categories fatalist, hierarchist, individualist and egalitarian (see Chapter three). *The sceptic* (a version of the fatalist), *acceptor* (the hierarchist), *self-interested* (the individualist) and *true democrat* (resonant with the egalitarian) – are these categories which emerged in the light of the theory applied and the data studied. I found that these four categories fit well in perceptions given by young Norwegians which can furthermore explain the diversity in attitudes towards climate change found within five group respondents. The results of the study indicate that the most of respondents fit the hierarchist and egalitarian categories of cultural theory, however the fatalist and individualist categories are also taken into consideration in the analysis (see Table 3). I therefore present the findings in the light of the cultural theory of risk with respect of ignorance and acceptance of the climate change by the respondents within four main categories.

1. The sceptic

Respondents identified to the sceptic category showed no interest in managing climate change issue as any actions on addressing the problem were perceived as hopeless. They expressed sceptical thoughts towards the possibility to mitigate climate change, however they accepted the reality of climate change problem. Respondents were sceptical that the climate will be changing in the nearest future but perceived it as a risk to humanity on a long-term perspective. According to the data interpretation in the light of the CTR grid-group typology I therefore see that this sceptical view on climate change corresponds well with the fatalist category (see Table 3). The respondents argued for pointless of any actions on climate change issue and perceived individual responsibility in mitigating climate problem as ineffective. Two respondents fit well into the category of the sceptic, because they showed a very little degree of concern about the future of the climate, often perceiving any actions on climate problem as hopeless (2UNIW; 4UNIW).

The analysis of the findings showed that there are two respondents of seventeen who corresponds to the fatalist grid-group CTR typology. This finding presents to some extent an opportunistic outcome since only two respondents deny their willingness to act on climate change problem. According to the study by Mcneeley and Lazrus (2014), it is likely that risk preferences framings in the light of CTR may be changed over time because people change their preferences based on different contexts and experiences (p.507). As such, people may change their attitudes towards society and the environment and as a result change their relation

to the climate problem. Two young people identified to the fatalist CTR typology represented sceptical attitudes towards the climate problem, however there is a chance that their attitudes will be changed over the time.

In accordance with the degree to which the fatalist accepts the climate problem, it is more likely that the willingness or ability to transform to a low-emission society among this group of respondents may be seen as limited. The group of fatalists (the sceptic) may be among the most vulnerable to climate change effects because of their weak social networks that may lead to a rejection of resource management decisions (Mcneeley and Lazrus 2014p.517). O'Riordan and Jordan (1999) argue that individuals identified as fatalists may not get involved in societal debate and they see no sense in learning about how to mitigate climate change, because they perceive it as hopeless. In relation to climate change problem, the identified sceptics may be confused and feared by the global problem.

 2. The acceptor

Respondents pre-screened to the acceptor category (hierarchist type of the CTR typology) fully accepted the issue of climate change. They underlined the importance of nature and the environment in building sustainable future. They are interested in knowing how the climate change would impact the northern Norway and the world. According to O'Riordan and Jordan (1999) this group of CTR relies on state regulations and tend to trust climate scientists and those in authority if it is appropriately legitimised. Mcneeley and Lazrus (2014) highlights that hierarchists accept knowledge on climate science and see scientific experts as the one who can identify "tipping points" for the planet. Dannevig and Hovelsrud (2016) states that they often create the culture of "accepting scientific knowledge". In accordance with the degree to which the group of pre-screened respondents accept rules, regulations and knowledge on the climate issue identified them as the acceptors.

Seven of respondents fit well into the category of the acceptor (see Table 3). These respondents accepted the importance of the scientific knowledge on climate issue and expressed recognition of the state leadership on climate problem. They underlined the role of the Norwegian government in mitigating climate change and developing rule-based-norms to the management of environmental choices such as recycling, a quota obligation for road transport. Seven identified acceptors perceive the role of governments as first investors into environmentally-friendly future where the state initiative is emphasised. O'Riordan and Jordan (1999) state that

hierarchists generally look to specific agreements and prefer regulations on the workings of the natural world. The authors underline that those individuals identified as the hierarchists prefer agreements that are judged more readily to respect authority and enforce agreed contracts (O'Riordan and Jordan 1999, p.87). Consequently, they do not see sense in regulations which have not been legalised by the state. Five of seven respondents pre-screened to the hierarchist way of life are students at the university (see Table 3). Since they have been enrolled to the education system since early ages, the institutionalized use of knowledge in educational institutions such as schools and universities has influenced their general acceptance of scientific knowledge and trust in government regulations to a large extent.

The degree to which the group of hierarchists accepts the scientific knowledge and political actions on climate change may lead to the full recognition of the need to mitigate a risk in a society within this group of respondents. Other studies highlighted that the acceptance of scientific knowledge and a high degree of concern about the consequences of climate change lead to the full recognition of initiatives towards low-emission future such as proactive adaptation measures for reducing climate change impacts, the government implemented regulations (Dannevig and Hovelsrud 2016; McNeeley and Lazrus 2014; O'Riordan and Jordan 1999; Ryghaig 2010).

3. Self-interested

According to the cultural theory of risk the stereotypical individualist is a "self-made person", who oppose state interventions, preferring instead personal responsibility (O'Riordan and Jordan 1999, p.87). The study by Dannevig and Hovelsrud (2016) states that individuals tend to work independently from others and they are not interested in social contacts in their activity. Individuals tend to see the knowledge on climate issue as not useful for them that speaks directly to the challenge of maintaining environmentally friendly lifestyle (Dannevig and Hovelsrud 2016). McNeeley and Lazrus (2014) argues that individualists see climate as a naturally variable process which cannot be changed by humans. Some studies underlined that perceptions of individualists to some degree may correspond to the fatalist category of the cultural theory of risk (Dannevig and Hovelsrud 2016; McNeeley and Lazrus 2014). The authors explain it by sceptical attitudes respondents have towards the climate problem and their unwillingness to act. Interpretation of the world from the individualist perspective corresponds to the society where individuals always find its equilibrium on its own (McNeeley and Lazrus 2014).

The type of worldview in the CTR group-grid typology which corresponds to the individualist is first and foremost a self-interested person who sacrifices individual interests to collective responsibility for any actions. What appeared as interesting finding of the study is that none of the respondents reflects the individualist way of life. The respondents of the study underlined the importance of both collective and individual efforts in mitigating climate change. The roles of the government and the individual in leading response to climate change have been perceived as equally important (see Table 2). O'Riordan and Jordan (1999) state that individualists are generally concerned about own prospects and problems that influence their freedom and autonomy and thus they will not consider collective responsibility in meeting climate change.

4. True democrat

The egalitarian group emphasis on the cooperation rather than individual response to climate change problem where the decisions are made with the consideration of consensus and equality (McNeeley and Lazrus 2014, p.508). The cultural theory of risk describes egalitarians as the group that believe in democratic decisions taken following open and frank debate (O'Riordan and Jordan 1999, p.87). I therefore named the group as the true democrat because they tend to share a strong belief in the need for a democratic approach in meeting climate change. The respondents of the study acknowledged that the balance between humans and nature is crucial for livelihood. Young Norwegians expressed more interest in open debate on climate issue than in other three categories. The collective response on climate change has been perceived as salient, while the democratic approach has been perceived as the only possible option in order to mitigate the climate problem.

The analysis of the findings showed that there are eight respondents who fit well into the category of true democrats (see Table 3). They recognised that positive outcomes require collective effort while political actions appeared to be unimportant. This finding relates to the egalitarian group worldview outlined in the study by McNeeley and Lazrus 2014. The authors state that this group places attention to the general philosophy of collectivity where the state regulations are seen as of secondary importance. The analysis of the findings showed that the environmentally interested respondents (engaged in Natur og Ungdom) match the characteristics of the egalitarians. The study by O'Riordan and Jordan (1999) explains it by saying that egalitarians prefer to work in environmental pressure groups such as Greenpeace and they try to be true democrats to the highest degree (p.87). True democrats see the crucial role of pro-environmental organizations such as Natur og Ungdom, in developing necessary

proactive initiatives. It is therefore more likely that the willingness or ability to transform to a low-emission Norwegian society among this group of young individuals may result in a high degree of incentives for future development and recognition of the need to mitigate climate risk. This finding relates to the study by Wolf and Moser (2011) that highlights the connection between the level of engagement and the knowledge on climate issue. This means that the true democrat engaged in environmentally friendly organisation such as Natur og Ungdom is more knowledgeable about climate change, where his perceptions will more likely motivate and shape his response on the climate problem. The empirical data showed that those engaged in Natur og Ungdom consider effective mitigation actions on climate problem as crucial.

6.3 Discussion

Mcneeley and Lazrus (2014) argue that the multiple voices and views on climate change problem may lead to more effective climate solutions when they reflect the diversity of perceptions held by groups of people. While the development of climate solutions happens across geopolitical scales, it is at the local level where most climate solutions occur through collective or individual behavior response to climate change risks and impacts. The degree to which individuals ascribe and accept externally imposed rules, regulations and prescriptions can be explained within the cultural theory of risk (Mcneeley and Lazrus 2014, p.508).

The findings of the study showed that most of the respondents correspond to the hierarchist (seven respondents) and the egalitarian (eight respondents) categories of cultural theory of risk grid-group typology (see the Table 3). The interpretation of the findings in the light of the cultural theory of risk highlights that the majority of young Norwegians accept the issue of climate change while their perceptions of the responsibility in meeting climate change vary considerably. The role of the government and its responsibility in mitigating climate change is perceived as salient among the acceptors (hierarchist) while the true democrats (egalitarian) argue the importance of democratic approach in response to climate change. Of the four CTR categories, egalitarians (the true democrats) were most concerned about finding the balance between human and natural systems where human society and nature coexist with mutual benefit. Furthermore, in order to achieve the balance the role of the government has been perceived as of secondary importance.

McNeeley and Lazrus (2014) explains this finding by saying that egalitarians tend to see the relationship between the state government agencies and citizens as tensioned that furthermore may likely lead to the opposition of individuals to state regulations. It is thus likely that young

Norwegians do not trust the government to some extent and believe that decisions should be taken following open debate with the involvement of non-governmental actors such as environmental organizations. Arnold et al. (2016) added that some Norwegians see climate change as less serious than scientific reports indicate because they do not simply see the urgent political action (p.44). Thus, I have observed that some of respondents are more aware of political action on climate change while others express concern, arguing that they do not see the urgent political action in order to remedy the situation. The lack of visible political actions on mitigating climate change in a Norwegian context may lead them to develop such perceptions. Ryghaug et al. (2011) argued that there is a certain "governance trap" in viewing the knowledge of climate change in Norway, "a lack of reinforcement between science and policy to achieve stability of both sides" that has implications on how public perceive the climate problem (p.13). Arnold et al. (2016) explain the lack of political action by saying that the state action is often interpreted as a question mark where politicians and people transfer responsibility to each other, often just pointing to each other as responsible to handle climate change.

On the other hand, the climate science is well established at universities and research institutes in Norway and the government funds scientific research to a very great extent (Ryghaug 2010). The government support the scientific conclusions of reports, possibly encouraging public acceptance of the scientific knowledge about climate change (Ryghaug 2010). However, a lack of political action and a lack "reinforcement between science and policy" has implications on public perceptions of climate change that has been found in the thesis (Ryghaug 2011). Young people call for more political action on climate change issue and underline the importance of all institutions such as pro-environmental organisations in mitigating climate issue.

Engaging the CTR approach in the analysis of the empirical findings of the study allowed me to get insight into why different groups within a society perceive the ability to transform to a low-emission society to a different degree. I argue that the lack of trust in political action on climate change limits the individual's willingness to transform to a low-emission society. From a motivational perspective, the presence of visible actions such as education campaigns aimed at increasing the public's knowledge on the impact of climate change contributes to individual's willingness or ability to transform to a low-emission society. O'Brien (2015) emphasises the role of studying public climate change perceptions in order to meet the ambitious climate-neutral target in the nearest future, and argues for "a more expansive view of political agency

is required - a view that captures an individual's ability to contribute to transformations" (p.1). The author underlines the role of individual actions on climate issue by changing behavior and by influencing structures and systems.

Perception of climate risk as salient and the recognition of the need to act are therefore placed as pre-conditions for transformations. O'Brien (2015) highlights the role each individual play in society's ability to transform to a low-emission society by saying that "cooperative behavior" on climate change "cascade" through social networks, where the individual and his perceptions influence more people than others might think (p.1). I therefore argue that successful transformations to sustainable future and society's ability to handle climate change are more likely rely on individuals and their engagement in community's initiatives and actions. The thesis suggests that success of the social transformations toward global sustainability will continue to rely on active individuals, those who acknowledge the climate change problem. The thesis argues that perceptions of individuals who fit the acceptor and the true democrat typology are likely to contribute to successful transformations to a low-emission sustainable future.

The findings showed gender-based differences in the perception of climate change leadership, in addition to discrepancies found between the group of non-engaged individual and the more environmentally interested one. This finding implies that climate change is a complex environmental, cultural, social and political phenomenon that means different things to different people in different locations. The role of gender, culture, environmental and economic aspects, but also societal attitudes to risk have to be taken into consideration when studying the climate risk perceptions and concerns of populations in further research.

Together, results of the study reveal that beliefs about climate change problem and individual's willingness to take actions to reduce global warming are influenced by the degree of public acceptance and support of the scientific knowledge and the political action at the country level.

CHAPTER 7 CONCLUSION

This thesis contributes to the understanding of the critical role of individuals in responding to climate change. Whether they are leaders in government or students at school, individuals are crucial actors in responding to climate change (Wolf and Moser 2011). The thesis has focused on individual's perceptions and attitudes towards climate change and applied the cultural theory of risk framework to explain personal perceptions of and responses to climate change. The study found a link between an individual's acknowledgement of climate change and the motivation for transformational actions. The theoretical framework allowed me to investigate which types of individuals and perceptions of climate change may further contribute to successful transformations on low-emission future in Norway.

The first finding from this thesis confirms the trend suggested in the existing literature. Young people's initial associations with climate change concerned its severe impacts and causes. This finding corresponds to Ballantyne et al. (2016) finding on Swedish student's perceptions of climate change. Their study found that how the news media have reported on climate change, focusing on images of extreme weather events and predictions of future catastrophes, has implication on how young people make sense of the climate problem (Ballantyne et al. 2016). The same tendency is evident with respect to young Norwegians who identify the issue of climate change as a rather frightening event. The widespread use of catastrophic scenarios in Norwegian media influences people's attitudes towards climate problem. Several studies have underlined the tendency when the media use frightening scenarios in order to make people feel anxious that further lead to the public acceptance of climate change as reality (Lowe et al. 2008; Ryghaug et al. 2010; Ballantyne et al. 2016).

The next finding corresponds to the pattern outlined in the recent study by Corner and Clarke (2017). Their study found that to date young people are highly cynical about mainstream politics and few expressed trust in either politicians or the media to provide accurate information about climate change. This thesis showed that young people in northern Norway see the absence of political action on climate issue and therefore not many perceive politicians as trustworthy voice on climate change. This finding imply that young Norwegians may see climate change as less serious because they do not simply see the urgent political action. There is a chance for the dissemination of climate scepticism among the young public that has been outlined in the recent study by Arnold et al. (2016). Their study found that the lack of visible

action on climate change creates a certain complexity in recognizing the climate change problem by the public (Arnold et al. 2016).

From the analysis of the empirical data, the thesis reveals that individualist and fatalist ways of life combined with sceptical and self-concentrated attitudes towards climate problem results in limited transformational potential, while hierarchist and egalitarian ways of life combined with use and acceptance of scientific knowledge contribute to success of transformations to a low-emission future. This corresponds to Dannevig and Hovelsrud (2016) findings where the study outlined that the individualist's distrust of scientific knowledge results in low salience of climate adaptation as an issue, while a hierarchical produces high salience. The finding of the thesis speaks directly to the importance of studying public perceptions of climate change in order to develop necessary proactive transformation actions.

The thesis revealed that the attachment to nature influence young people's beliefs in climate change. This finding mean that a perception of resilient Norwegian nature can lead to complacency, resulting in inaction on climate change. This corresponds to Amundsen's findings that the attachment to natural environment reflects in the people's commitment to respond to the challenges facing their local community (Amundsen 2012). The relatively cold climate of northern Norway contributes to a widespread popular perception of country's resilience to climate change. This finding means that young people do not see the need in urgent action on climate change at the local level that can therefore limit the potential for future social transformations. The natural resources of northern Norway produce the appreciation of access to relatively cheap renewable energy where climate change is viewed as a distant concern.

I conclude that a future research need to take a broad scope of changing factors into account when studying young people perceptions of climate issue. More emphasis on the societal context in terms of other changing conditions such as cultural, socio-economic and political, when studying youth perceptions of climate issue will enhance the understanding of what would or already does motivate young people to engage in actions on climate change at the local level.

REFERENCES

Aasen, M. (2015). The polarization of public concern about climate change in Norway. *Climate Policy*, 17(2), 213-230. doi: 10.1080/14693062.2015.1094727.

Adger, W., Dessai, S., Goulden, M., Hulme, M., Lorenzoni, I., Nelson, D., Naess, L., Wolf, J. and Wreford, A. (2009). Are there social limits to adaptation to climate change? *Climatic Change,* 93(3), 335–354. doi: 10.1007/s10584-008-9520-z.

Adger, W., Barnett, J., Chapin, F. and Ellemor, H. (2011). This must be the place: underrepresentation of identity and meaning in climate change decision-making. *Global Environmental Politics*, 11(2), 1–25. doi: 10.1162/GLEP_a_00051.

Amundsen, H. (2012). Illusions of resilience? An analysis of community responses to change in northern Norway. *Ecology and Society,* 17(4): 46. doi: 10.5751/ES-05142-170446.

Arcury, T. (1990). Environmental Attitude and Environmental Knowledge. *Human Organization: Winter 1990*, 49(4), 300-304.

Arnold, A., Böhm, G., Corner, A., Mays, C., Pidgeon, N., Poortinga, W., Poumadère, M., Scheer, D., Sonnberger, M., Steentjes, K., Tvinnereim, E. (2016). *European Perceptions of Climate Change. Socio-political profiles to inform a cross-national survey in France, Germany, Norway and the UK*. [online] Oxford: Climate Outreach, p.67. Available at: http://climateoutreach.org/resources/european-perceptions/ [Accessed 12 May 2017].

Bakker, T., and Vreese, C. (2011). Good news for the future? Young people, Internet use and political participation. *Communication Research,* 20(10), 1–20. doi:10.1177/0093650210381738.

Ballantyne, A., Wibeck, V. and Neset, T. (2016). Images of climate change: A pilot study of young people's perceptions of ICT-based climate visualization. *Climatic Change*, 134(1), 73-85. doi:10.1007/s10584-015-1533-9.

Baltar, F. and Brunet, I. (2012). Social research 2.0: virtual snowball sampling method using Facebook. *Internet Research*, 22(1), 57-74. doi: 10.1108/10662241211199960.

Beck, U. (1992). *Risk Society: Towards a New Modernity*. London: Sage.

Behi, R. and Nolan, M. (1995). Ethical issues in research. *British Journal of Nursing*, 4(12), 712, doi: 10.12968/bjon.1995.4.12.712.

Berg, B. and Howard, L. (2012). *Qualitative Research Methods for the Social Sciences*. United States of America: Pearson.

Bjørnbakk, J. (2016). Miljøorganisasjoner saksøker staten. *VG*, [online] p.1. Available at: http://www.vg.no/nyheter/innenriks/klima/miljoeorganisasjoner-saksoeker-staten/a/23823423/#comments [Accessed 12 May 2017].

Bord, R., Fisher, A. and Connor, R. (1998). Public perceptions of global warming: United States and international perspectives. *Climate Research*, 11, 75–84.

Boulianne, S. (2009). Does Internet use affect engagement? A meta-analysis of research. *Political Communication*, 26(2), 193-211. doi: 10.1080/10584600902854363.

Bjartnes, A. (2015). *Det Grønne Skiftet*. Oslo: Norsk Klimastiftelse.

Brechin, S. and Bhandari, M. (2011). Perceptions of Climate Change Worldwide. *WIREs Clim Change* 2, 871–885. doi: 10.1002/wcc.146.

Buhr, K. and Hansson, A. (2011). Capturing the stories of corporations: a comparison of media debates on carbon capture and storage in Norway and Sweden. *Global Environmental Change*, 21(2), pp. 336-345.

Capstick, S., Whitmarsh, L., Poortinga, W., Pidgeon, N. and Upham, P. (2014). International trends in public perceptions of climate change over the past quarter century. *WIREs Clim Change*, 6(1), 35-61. doi: 10.1002/wcc.321.

Corner, A., Markowitz, E. and Pidgeon, N. (2014). Public engagement with climate change: the role of human values. *WIREs Clim Change*, 5(1), 411-422. doi: 10.1002/wcc.269.

Corner, A., Roberts, O., Chiari, S., Voller, S., Mayrhuber, E., Mandi, S. and Monson, K. (2015). How do young people engage with climate change? The role of knowledge, values, message framing, and trusted communicators. *WIREs Climate Change*, 6(5), 523–534. doi: 10.1002/wcc.353.

Corner, A. and Clarke, J. (2017). *Talking climate. From research to practice in public engagement*. London: Springer.

Creswell, J. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Los Angeles: Sage.

Dannevig, H. and Hovelsrud, G. (2016). Understanding the need for adaptation in a natural resource dependent community in Northern Norway: issue salience, knowledge and values. *Climatic Change*, 135(2), 261-275. doi:10.1007/s10584-015-1557-1.

Douglas, M. and Wildavsky, A. (1982). *Risk and culture: an essay on the selection of technical and environmental dangers.* California: Berkeley.

Drever, E. (1995). *Using Semi-Structured Interviews in Small-Scale Research. A Teacher's Guide.* Edinburgh: Scottish Council for Research in Education.

Dunlap, R. (1991). Trends in public opinion toward environmental issues: 1965-1990. *Society and Natural Resources,* 4(1), 285–312.

Dunlap, R. (1998). Lay perceptions of global risk: public views of global warming in cross-national context. *Sage,* 13(4), 473-498. doi: 10.1177/026858098013004004.

Eiterjord, G. (2016). Fremmer klimasøksmål mot Staten. *Natur og Ungdom*, [online] p.1. Available at: https://nu.no/saker/olje/2016/10/fremmer-klimasoksmal-mot-staten/ [Accessed 12 May 2017].

European Commission, Paris Agreement, [online], http://ec.europa.eu/clima/policies/international/negotiations/paris/index_en.htm [Accessed 12 May 2017].

Feola, G. (2015). Societal transformation in response to global environmental change: A review of emerging concepts. *Ambio*, 44(5), 376–390. doi:10.1007/s13280-014-0582-z.

Fløttum, K. and Espeland, T. (2014*).* Norske klimanarrativer – hvor mange "fortellinger"? En lingvistisk og diskursiv analyse av to norske stortingsmeldinger. *Sakprosa*, 6(4), 1-18.

Hibberd, M. and Nguyen, A. (2013). Climate change communications & young people in the Kingdom: A reception study. *International Journal of Media and Cultural Politics*, 9(1), 27-46. doi:10.1386/macp.9.1.27_1.

Hood, R., McLaren, B., Martin, D. and Jackson, L. (2011). Youth views on environmental changes, the future of the environment and stewardship: the case of a Canadian coastal community. *Society and Natural Resources,* 24 (6), 616–625. doi:10.1080/08941920903484263.

Gardner, G. and Stern, P. (2002). *Environmental problems and human behavior*. Boston: Pearson Custom Publishing.

Gibbs, G. (2007). *Analyzing Qualitative Data*. London: Sage.

Grundmann, R. (2006). Ozone and Climate, Scientific Consensus and Leadership. *Science, Technology, and Human Values,* 31(1), 73–101. doi: 10.1177/0162243905280024.

Hovelsrud, G. and Smit, B. (2010). *Community Adaptation and Vulnerability in the Arctic Regions.* Dordrecth: Springer.

IPCC (2014) Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. [online] Geneva, Switzerland. Available at: https://www.ipcc.ch/report/ar5/syr/ [Accessed 12 May 2017].

Joffe, H. and Smith, N. (2013). How the public engages with global warming: A social representations approach. *Public Understanding of Science*, 22(1), 16–32. doi: 10.1177/0963662512440913.

Johannessen, A., Christoffelsen, L. and Tufte, P. (2016). *Introduksjon til samfunnsvitenskapelig metode*. Oslo: Abstrakt forlag AS.

Joireman, J., Barnes, H. and Duell, B. (2010). Effect of outdoor temperature, heat primes and anchoring on belief in global warming. *Journal of Environmental Psychology*, 1(10), 358–367. doi: 10.1016/j.jenvp.2010.03.004.

Kempton, W. (1991). Lay perspectives on global climate change. *Global Environmental Change*, 1(3), 183–208. doi: 10.1016/0959-3780(91)90042-R.

Knutti, R., Rogelj, J., Sedlacek, J. and Fischer, E. (2016). A scientific critique of the two-degree climate change target. *Nature Geoscience*, 9(1), 13–18. doi:10.1038/ngeo2595.

Krekling, D. (2017). Snart må Staten møte i retten for å forsvare egen oljepolitikk. *NRK*, [online]. Available at: https://www.nrk.no/norge/snart-ma-staten-mote-i-retten-for-a-forsvare-egen-oljepolitikk-1.13378170 [Accessed 12 May 2017].

Kvale, S. (1996). *Interviews: an introduction to qualitative research interviewing*. London: Sage Publications Ltd.

Lorenzoni, I. and Pidgeon, N. (2006). Public views on climate change: European and USA perspectives. *Climatic Change*, 77(1), 73–95. doi: 10.1007/s10584-006-9072-z.

Lowe, T., Brown, K., Dessai, S., Doria, M., Haynes, K. and Vincent, K. (2006). Does Tomorrow Ever Come? Disaster Narrative and Public Perceptions of Climate Change. *Public Understanding of Science,* 15(4), 435–57. doi: 10.1177/0963662506063796.

MacDonald, J., Harper, S., Cunsolo, A. and Edge, V. (2013). A necessary voice: Climate change and lived experiences of youth in Rigolet, Nunatsiavut, Canada. *Global Environmental Change*, 23(1), 360–371. doi: 10.1016/j.gloenvcha.2012.07.010.

Marshall, M. (1996). Sampling for qualitative research. *Family Practice*, 13 (6), 522-526. doi: 10.1093/fampra/13.6.522.

Marshall, N., Fenton, D., Marshall, P. and Sutton, S. (2007). How resource-dependency can influence social resilience within a primary resource industry. *Rural Sociology*, 72(3), 359–390. doi: 10.1526/003601107781799254.

Mays, N. and Pope, C. (1995). Qualitative research: Rigour and qualitative research. *BMJ*, 311(6997), 109–122.

McCright, A. and Dunlap, R. (2011). The politicization of climate change and polarization in the American public's views of global warming. *Official Journal of the Midwest Sociological Society,* 52(2), 155–194. doi: 10.1111/j.1533-8525.2011.01198.x.

McNeeley, S. and Lazrus, H. (2014). The Cultural Theory of Risk for Climate Change Adaptation. *WCAS*, 6(1), 506–519. doi: http://dx.doi.org/10.1175/WCAS-D-13-00027.1.

Ministry of Climate and Environment, Norway's climate target for 2030, [online] Available at: https://www.regjeringen.no/en/aktuelt/innsending-av-norges-klimamal-til-fn/id2403782/ [Accessed 12 May 2017].

Ministry of Climate and Environment, Green shift, [online] Available at: https://www.regjeringen.no/en/topics/climate-and-environment/climate/innsiktsartikler-klima/green-shift/id2076832/ [Accessed 12 May 2017].

Holmenkollen Ski Jump in Oslo gone green. *NRK*, [online] p.1. Available at: https://www.nrk.no/nyheter/holmenkollbakken-er-gronn-_-1.13212196 [Accessed 12 May 2017].

Norwegian Ministry of Climate and Environment, Norwegian Report on Climate Change Adaptation, Vulnerability to the impacts of climate change in Norway, [online] Available at: https://www.regjeringen.no/en/aktuelt/vulnerability-to-the-impacts-of-climate-/id664929 [Accessed 12 May 2017].

Norwegian Environment Agency, Climate projections for Norway in 2100, [online] Available at: http://www.miljodirektoratet.no/no/Publikasjoner/2015/September-2015/Klima-i-Norge-2100/ [Accessed 12 May 2017].

Nordland County Council, Nordland county, [online] Available at: https://www.nfk.no/om-nordland-fylkeskommune/om-nordland/in-english/ [Accessed 12 May 2017].

O'Brien, K., Eriksen, S., Sygna, L. and Naess, L. (2006). Questioning Complacency: Climate Change Impacts, Vulnerability, and Adaptation in Norway. *Ambio*, 35(2), 50-56. doi: 10.1579/0044-7447(2006)35[50:QCCCIV]2.0.CO;2.

O'Brien, K. (2011). Global environmental change II From adaptation to deliberate transformation. *Progress in Human Geography,* 36 (5), 667–676. doi: 10.1177/0309132511425767.

O'Brien, K. (2016). Climate change and social transformations: is it time for a quantum leap? *WIREs Clim Change*, 618- 625. doi: 10.1002/wcc.41.

O'Brien, K. and Wolf, J. (2010). A values-based approach to vulnerability and adaptation to climate change. *WIREs Clim Change*, 1(1), 232-242. doi: 10.1002/wcc.30.

O'Riordan, T. and Jordan, A. (1999). Institutions, climate change and cultural theory: towards a common analytical framework. *Glob Environ Chang,* 9(1), 81–93. doi:10.1016/S0959-3780(98)00030-2.

OECD (2016). OECD Regional Outlook 2016: Productive Regions for Inclusive Societies, OECD Publishing, [online] Paris. Available at: http://dx.doi.org/10.1787/9789264260245-en [Accessed 12 May 2017].

Pelling, M. (2011). *Adaptation to Climate Change: From Resilience to Transformation*. Abingdon: Routledge.

PITCH project description, [online] Available at: http://www.cicero.uio.no/en/posts/projects/pitch [Accessed 14 May 2017].

Prasadh, R. and Suresh, J. (2016). Green affinity: Evaluating the perceptions of youth on climate change and renewable energy. *Prabandhan*, 9(9), 11-26. doi: 10.17010/pijom/2016/v9i9/101503.

Ryghaug, M. and Skjølsvold, T. (2016). Climate Change Communication in Norway. *Oxford Research Encyclopedia of Climate Science,* 1-29. doi: 10.1093/acrefore/9780190228620.013.453.

Ryghaug, M., Sørensen, K. and Næss, R. (2010). Making sense of global warming: Norwegians appropriating knowledge of anthropogenic climate change. *Public Understanding of Science*, 20(6), 778 – 795. doi:10.1177/0963662510362657.

Saidel, J. (1991). Resource interdependence: The relationship between state agencies and nonprofit organizations. *Public Administration Review*, 51(6), 543–553. doi: 10.2307/976605.

Silverman, D. (2006). *Interpreting Qualitative Data*. London: Sage.

Smit, B. and Wandel J. (2006). Adaptation, adaptive capacity and vulnerability. *Global Environmental Change*, 16(3), 282-292. doi: 10.1016/j.gloenvcha.2006.03.008.

Spence, A. and Pidgeon, N. (2010). Framing and communicating climate change: The effects of distance and outcome frame manipulations. *Global Environmental Change,* 20(4), 656–667.

Thagaard, T. (2009). *Systematikk og Innlevelse. En innføring i kvalitativ metode*. Bergen: Fagbokforlaget Vigmostad og Bjørke AS.

Thompson, M., Ellis, R. and Wildavsky, A. (1990). *Cultural Theory*. London: Westview Press.

Tøsse, S. (2013). Aiming for social or political robustness? Media strategies among climate scientists. *Science Communication*, 35(1), 32–55.

Weber, E. (2010). What shapes perceptions of climate change? *WIREs Clim Change*, 1(3), 332–342. doi: 10.1002/wcc.41.

Westley, F., Olsson, P., Folke, C., Homer-Dixon, T., Vredenburg, H., Loorbach, D., Thompson, J., Nilsson, M., Lambin, E., Sendzimir, J., Banerjee, B., Galaz, V. and Leeuw, S. (2011). Tipping Toward Sustainability: Emerging Pathways of Transformation. *AMBIO,* 40(7), 762–780. doi:10.1007/s13280-011-0186-9.

West, J. and Hovelsrud, G. (2008). Climate change in Northern Norway: Toward an understanding of socio-economic vulnerability of natural resource- dependent sectors and communities. [online] Oslo: CICERO. Available at: https://brage.bibsys.no/xmlui//handle/11250/191956 [Accessed 12 May 2017].

Wolf, J. and Moser, S. (2011). Individual understandings, perceptions and engagement with climate change: insights from in-depth studies across the world. *Wiley interdisciplinary reviews*, 2(1), 547-569. doi: 10.1002/wcc.120.

APPENDIX 1: Interview guide

Personal information

Name, age, number of years living in Bodø, educational level (school or university), field of interests, future plans once you're finished with studies, a member of environmental organization such as Natur og Ungdom (yes/no), contact information (email).

Section 1 - Perception of climate change (how much do you know about cc)

❏ In Norway, we have easy access to clean water, air, beautiful nature and quite often we take it for granted. What do you think about resources and the environment we have here in Norway? What do you personally think is the benefit (if it is) of the climate in Norway compare to other countries in the world? Can you tell me about your ideas and thoughts?

❏ Climate change is a much-discussed topic today. It is often called the challenge of century. What comes to your mind when you hear the words 'climate change'?

❏ Dagbladet had last year (August 2015) published the article: "*Verdens isbreer smelter raskere enn noen gang tidligere siden systematiske målinger begynte*". Would you say that it can be caused by the issue of climate change? What do you think about the weather we have today? Would you say that you worry about climate we have today and in the future? What it would mean for you if you were unable to ski in 20-30-40 years due to reduced snow covered (e.g. heat waves, more extreme weather)? (Norwegians are well-known for being a ski-culture, "Norwegians are born with skies on their feet" - but what can happen if all snow disappears?) What would that mean for you and perhaps also for the future of your kids? Please tell me about your ideas and thoughts.

❏ What does the weather mean to you in general (when it is good, problematic, challenging or weird)? Does it affect your daily life? Once you moved to Bodø, does the weather here affect your normal daily life? (not suitable weather for outdoor activities, etc.)

❏ How important is the issue of climate change for you personally? What changes it can bring in your life and life in the future?

❏ Where do you usually get the information from (internet, newspapers, tv, blogs, friends)?

Section 2 - The role of the individual in meeting climate change (what you can do about it)

❏ What do you think about the public debate about the climate change? Do you hear about it in the media?

❏ In the debate about climate change it is quite often discussed who has the responsibility to stop or reduce GHG (mitigate climate change). Do you think that we are responsible for that ourselves? Which particular actions would you do? How much responsibility would you say each of individual has in order to solve this problem (to reduce GHG emissions)?

❏ Is there anything you would have done in order to reduce emissions in your personal life? Which of any of those actions (mentioned in previous answer) you would like to change/willing to change and what do you see as preventing you from doing so? (financial issues (if you have enough financial resources available), social expectations, other issues, etc.).

Section 3 - Perspectives on climate change

❏ What a concept "safe planet" means to you? (What gives you hope that the planet is safe) (is it at all and will it be?) How do we care about it?

❏ --- for Natur og Ungdom interview---- "*WE MUST, CAN, WILL TAKE ACTION NOW*" is the message written on T-shirts worn by youth delegates all around the conference COP21 (United Nations Conference on Climate Change) last autumn in Paris. Do you agree or disagree that WE are in charge of our future and have to take action NOW to prevent climate change? What can we do to stop climate change? Tell me about your ideas. (turn off the lights, use less water, etc.)

❏ --- for others --- What do you think if our generation has much influence over decisions that concern our future? Do we need to take action?

❏ To your mind what role does the Norwegian government play in addressing climate change? Do you think the government is doing enough to prevent CC? --- for Natur og Ungdom --- How do you consider the chances of the Norwegian government to reduce its emissions by at least 40 % within 2030?

❏ Do you agree or disagree with the following statement: "*Politics does play an important role simply because they have the power and they have the most influence on decision-making. The government should lead on society's response to climate change. It's important that they are the first ones to act*."

❏ Do you feel that you need more information about the climate change? (more neutral point of view, etc.?)

Is there anything more you would like to add?
Thank you very much for your time ;)

APPENDIX II: Oral consent of the study

Title: Climate change in northern Norway: young people's perceptions and engagement with climate change

Hello again,

I would like to thank you for taking the time to meet with me today. I am Julia Bobina from the Nord University where I am working on my Master thesis project during this year. It's a project about the young people's perceptions and engagement with climate change problem. I would like to talk to you about the climate change issue, your personal ideas and thoughts about it. The interview process will take around 35-45 minutes.

During the interview, I will be taking detailed notes because I want to evaluate any of your comments afterwards. All responses will be kept confidential. This means that your interview responses and personal data will only be shared with research team members (me and a supervisor) and I will ensure that any information I include in the thesis does not identify you directly as the respondent.

Please, keep in mind that you do not have to talk about anything you do not want to and you always have the opportunity for ending the interview at any time. I want to ensure you that when the project is completed, all data will be destroyed (after finishing my thesis on 15th May 2017).

Be aware that the Norwegian center for research data (NSD) has ethically approved this research project and how to contact me in case of any concerns or complaints.

Do you have any questions before starting the interview? Are you willing to participate in this interview?
[*Await confirmation*] I appreciate your cooperation in this study.
So, if you're happy with all of that and have no more questions, let's start ☺

APPENDIX III: Record of oral consent of the study

Participant: Name or Code

Date:

Location:

Master's thesis research project explained (Yes/No)

Notes taken (Yes/No)

Participant confirmed the participation? (Yes / No)

Participant agreed to quoting in the empirical chapter of the thesis which would not identify him (coding)? (Yes/No)

Participant disagreed to quoting him? (Yes/No)