Attitudes, cognition and affect related to climate refugees

Altering Norwegian attitudes towards climate change, refugees and climate refugees

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Abstract

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The current thesis aimed to investigate how attitudes and intentions towards climate change, refugees and climate refugees may be modified using the cognitive and affective components of attitudes. This is interesting due to somewhat contradicting previous findings (Eagly, Mladinic & Otto, 1994; Pooley & Connor, 2000). The thesis consisted of two separate studies, with separate samples. Data for both studies were independently collected for this thesis using online questionnaires. The first study investigated how attitudes towards climate change and refugees may be altered using information about climate refugees as the mediator. Here, participants were recruited through the SONA student pool, e-mails and social media, providing a sample of 166 participants with a variety in age, gender and education. In this study, participants reported their attitudes towards climate change and refugees pre- and post-manipulation. Information about climate refugees were presented to participants through 'true or false'-questions. This study found a non-significant effect of information on attitudes, where those in the experimental condition (compared to those in the control condition) did not report significantly more positive attitudes towards neither climate change nor refugees. In the second study, the affective component was examined, using a sound clip of a climate refugee story to evoke emotions. Here, participants were recruited through the SONA student pool, leaving a sample of 144 students. In this study, participants firstly reported their attitudes towards climate change and refugees, before being presented with the sound clip. Thereafter, participants' emotional response and intentions to act upon climate change and climate refugees was measured. This study showed a non-significant effect of the sound clip on intentions. However, feelings of kama muta and anger did significantly predict participants' intentions to act, and an indirect effect was detected. It is important to note that there was a ceiling effect in both studies pre-manipulation, which may explain why we did not find a significant effect of the cognitive or affective mediators. However, the emotional sound clip showed a tendency of greater intentions. The results may suggest that evoking emotions of kama muta and anger can contribute to improve intentions to act upon climate change and climate refugees, but this effect was not found to be significant in this study. Therefore, future research is encouraged to further investigate these relationships.

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1 Introduction

1.1 Climate change

Climate change is, according to Rudman and colleagues, one of the "most pressing existential threats of our time" (Rudman, McLean & Bunzl, 2013, p. 2290). While climate change began to be visibly apparent already in the 1980´s (World Metrological Organisation (WMO), 2016), the effects of climate change have become more and more apparent over the recent years. This has caused an increased focus on climate change and its potential threats, which resulted in the Paris Climate Agreement being signed by 195 nations in 2016 (Climate Focus, 2015). The agreement requires the nations to act upon climate change, with a common goal of preventing global warming from reaching 2 degrees above the pre-industrial average (Climate Focus, 2015).

After severe damage and death rates to the United States of America due to hurricanes Irene and Sandy in 2011 and 2012, President Obama put a large emphasis on the impacts and reality of climate change (Rudman et al., 2013). The current President Trump however, has at several occasions clearly stated that he does not believe in climate change, and even decided to withdraw the United States form the Paris Climate Agreement (e.g. Nuccitelli, 2018; Ruddick, 2018; Zhang, Dai, Lai, & Wang, 2017). Hence, while the Paris Climate Agreement has been signed by several nations (Clmate Focus, 2015), there are still obvious differences in attitudes and beliefs regarding climate change. Therefore, it is increasingly important to focus on understanding how people perceive the threats of climate change and their role and responsibility in it. This topic will therefore be addressed in this thesis.

The American Psychological Association (APA) (2009) defines climate change as "changes over time in the averages and variability of surface temperature, precipitation, and wind as well as associated changes in Earth's atmosphere, oceans and natural water supplies, snow and ice, land surface, ecosystems, and living organisms" (p. 6). The Intergovernmental Panel on Climate Change (IPCC) (2007) goes on to explain that such climate change can occur either due to human activity or natural variability, but that much of the changes over the previous centuries are likely due to human activity.

According to the report "The Global Climate in 2011-2015" by WMO (2016), 2011-2015 was the warmest five-year period ever recorded globally (WMO, 2016). The report suggests that

the warmest year ever recorded was 2015, with 2014 being the second warmest (WMO, 2016). These findings suggest an increase in temperatures from year to year, and not only on averages of time periods. Such increases in temperatures are also expected to continue (Kvåle, 2014). Moreover, it was reported that the "concentration of long-lived greenhouse gasses continues to rise" (WMO, 2016, p.8), and that artic sea ice continues to melt, causing a continued rise in sea levels (WMO, 2016). The five-year period was also affected by several extreme weather and climate events that had seriously severe effects on a large number of people in several parts of the world. For instance, the report shows estimates suggesting that the drought in East Africa resulted in the death of about 258 000 people in Somalia, and that about 13 million people in the area were in the need of humanitarian assistance (WMO, 2016). Moreover, flooding in Pakistan in 2012 affected 5 million people, where 460 000 homes were damaged or destroyed (WMO, 2016). Summarising the report, extreme heat and cold, alongside with flooding, storms, droughts and tropical cyclones, have throughout the five-year period cost several billion dollars and a large number of people's lives (WMO, 2016).

1.1.1 Climate change as a global health threat

Climate change causes areas to be uninhabitable, by for instance making it impossible to grow food (Internal Displacement Monitoring Centre (IDMC), 2015; Kvåle, 2014). The inability to grow food can cause serious health issues, including severe hunger (Kvåle, 2014). For instance, it was reported in 2015 that about 795 million people suffer from severe hunger (Food and Agriculture Organization of the United Nations (FAO), World Food Programme (WFP), & International Fund for Agricultural Development (IFAD), 2015), and there is reason to believe that this number will increase as a result of the expected increase in the world's population to about 9 million by 2050 (FAO, 2012). Such hunger is one of many climate issues that cause people to flee from their homes (Kvåle, 2014). Such migrations due to climate change can potentially cause increased population density in large cities, which in turn can lead to social conflict (Kvåle, 2014). Moreover, people that are forced to flee from their homes may have trouble getting access to the healthcare services that they need, which may again pose a threat to their health (IDMC, 2015). For these mentioned reasons, among others, climate change has been considered the biggest threat towards global health of this century (Costello et al., 2009).

There is reason to believe that climate change will continue to be considered the biggest global health threat. For instance, previous studies conducted by IPCC (2007) have suggested that increases in temperature will continue to have negative effects on health, especially for the poor (Boano, Zetter & Morris, 2008; Doherty & Clayton, 2011; IPCC, 2007). IPCC (2007) investigated the likelihood for several results of climate change to be apparent in the future. The study showed a high probability that increased maximum and minimum temperatures would occur, leading to increased illnesses and deaths related to heat, as well as an extended range of disease vectors and pest (IPCC, 2007; APA, 2009). For instance, it has been suggested that increased temperatures can lead to greater occurrences of cardio-respiratory diseases, diarrhoeal diseases, and vector-borne diseases such as malaria (Boano et al., 2008).

1.2 Climate refugees

Climate change causes extreme weather events and makes areas uninhabitable. For instance, increases in temperatures leads to droughts or floods in certain areas, making it difficult to grow food and reducing access to water (Costello et al., 2009; FAO, WFP & IFAD, 2012). Extreme events such as typhoons, cyclones, storms, heatwaves, droughts and forest fires ruin houses and leave people without homes (WMO, 2016). Events like these therefore cause the inhabitants of such areas to flee from their homes. According to the UN, more than 19.3 million people in more than 100 countries were displaced in 2014 because of extreme weather (FN-sambandet, 2017). Moreover, they report that every year since 2008, an average of 26.4 million people has been displaced as a result of natural disasters (FN-sambandet, 2017).

The people who must flee from their homes because of climate change are often referred to as "climate refugees" or "environmental refugees" (FN-sambandet, 2017). However, people who flee because of climate change do not have the same rights as other refugees (FN-sambandet, 2017; United Nations High Commissioner for Refugees (UNHCR), 1951; UNHCR, 2015). This is because these people are not considered refugees by the United Nations (UN) 1951 refugee convention: "the term "refugee" shall apply to any person who: …(are) owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion" (UNHCR, 1951, p.14). Even though people who are forced to flee because of climate change are not considered refugees, this group of individuals will be referred to as "climate refugees" throughout this thesis.

The fact that climate refugees are not considered refugees by the UN is troubling. Because they are not considered refugees, this group of people do not have the same rights when it comes to international protection, as do other refugees (FN-sambandet, 2017). Therefore, most of these climate refugees have until now generally not crossed country borders, and they are hence in the category of "internally displaced persons" (FN-sambandet, 2017; UNHCR, 2015). Internally displaced persons are the responsibility of their own state, and the government are required to take care of such individuals (FN-sambandet, 2017; UNHCR, 2015). However, in several current situations, the governments are unable or unwilling to take care of these climate refugees, and they therefore often live under extremely poor conditions (FN-sambandet, 2017). Also after the acute event period, climate refugees often require support, independently of whether they stay where they have been displaced to, return to their homes, or settle elsewhere (UNHCR, 2015).

1.2.1 The connection between climate change and refugees

As seen, climate change can lead people to flee from their homes. This therefore suggests that the ecological crisis of climate change and the human refugee-crisis are two crises that are interchangeably connected (Singh, 2015). It can in the future be expected several more extreme weather events, and climate change will continue to have even more apparent effects on global health (APA, 2009; Boano et al., 2008; IPCC, 2007). Therefore, while we unfortunately can expect that large groups of people will continue to flee because of wars, disease and persecution, there is also reason to believe that an increasing number of individuals will flee because of climate change (Sing, 2015). For instance, it is believed that by 2050, up to 200 million people will be displaced as a result of climate change (Myers, 2005, as cited in Boano et al., 2008, p. 12). It may therefore be important that research focuses on this issue, which is what this current thesis will aim to do.

According to yearly reports done by TNS Gallup on the Norwegian population, both climate change and immigration have been rated as two of the biggest challenges for Norway (TNS Gallup, 2016). The number of Norwegians who indicated feeling threatened by immigration increased from 2015 to 2016, which seemed to simultaneously decrease the perceived threat of climate change (TNS Gallup, 2016). This may suggest that people in general do not see the interaction of these two factors, and that they are only able to focus on what they are most directly affected by (i.e. refugees). Nevertheless, out of the 14 factors that were included in

the questionnaire, both climate change and immigration has been rated as the top four most challenging factors for Norwegian society over the past seven years (TNS Gallup, 2016). Furthermore, the report suggests that fewer (as compared to their 2015 study) participants reported having experienced consequences of climate change in their neighbouring areas, but an increasing number of participants simultaneously worry about consequences of climate change (TNS Gallup, 2016). TNS Gallup use these findings in suggesting that Norwegians do care about climate, but that it is overshadowed by other cases (e.g. immigration) that have more immediate and direct effects. When considering climate refugees, these findings may suggest that Norwegians perceive climate change and immigration as two separate issues. However, it may be important to note that the immigrants that are a reported threat in the TNS Gallup (2016) paper are not climate refugees, and that the numbers may have looked slightly different if that was the case.

1.2.2 Psychology of climate change

According to APA's (2009) report on psychology and global climate change, the increased warming of the earth (as reported by WMO, 2016) is mainly due to human activity. Furthermore, the article goes on to suggest that the impacts of climate change are mediated by peoples' psychological and social processes, and that it thereby also can be reversed or limited mainly by human activity, either by collective or individual behaviour (APA, 2009). The report puts emphasis on the importance of using psychological knowledge to "understand the causes and consequences of climate change" (APA, 2009, p.13). Using psychological knowledge can, according to the report, contribute in understanding "psychological impacts of climate change" (APA, 2009, p.13), understand the how and why of human contribution to climate change, and ultimately contribute in developing actions and strategies that will reduce pollution (APA, 2009). The current master thesis therefore wishes to focus on one part of the psychology of climate change, namely attitudes. Focusing on attitudes related to climate change enables us to understand how attitudes can be changed, and in turn how behaviours related to climate change may be altered. More specifically, the current study wishes to focus on the relationship between attitudes towards climate change and refugees, and thereby also climate refugees. The study wishes to examine how attitudes towards climate change and refugees may be altered using climate refugees as a mediator. This will be investigated looking at different components of attitudes, and how these may be used to mediate attitudes. The research question of the current thesis is therefore "How may information and feelings about climate refugees contribute in altering intentions and attitudes towards climate change

and refugees?". Before presenting a more detailed plan of the current study, theories on attitudes and some previous studies on attitudes towards climate change and refugees will be introduced.

2 Attitudes

Attitudes have been defined in several different ways throughout the years (e.g. Crano & Prislin, 2006; Hogg & Vaughan, 2005; Katz, 1960; Maio & Haddock, 2010). For instance, an attitude can be defined as "the predisposition of the individual to evaluate some symbol or object or aspect of his world in a favorable or unfavorable manner" (Katz, 1960, p. 168) or as "a relatively enduring organization of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols" (Hogg & Vaughan, 2005, p. 150). Furthermore, Crano & Prislin (2006) suggests that an attitude "represents an evaluative integration of cognitions and affects experiences in relation to an object" (p. 347). Despite different definitions, there seems to be a common understanding that attitudes are based on an evaluation of an object, and whether it is favourable or unfavourable (Maio & Haddock, 2010). There are also different theories of how attitudes are constructed, and some of the most central theories will now be presented.

2.1 Attitude theories

2.1.1 The Multicomponent Model of Attitudes

Several researchers have suggested that attitudes consist of three different structures: the affective component, the cognitive component and the behavioural component (Eagly & Chaiken, 1993; Rosenberg & Hovland, 1960, as cited in Ajzen & Fishbein, 2005; Zanna & Rempel, 1988, as cited in Maio & Haddock, 2010). Not all researchers have agreed that attitudes consist of three components, and some have suggested only one or two components of attitudes (see Chiu, 2002, p. 267 for a short overview). However, it has been empirically demonstrated that the three mentioned components (cognitive, affective and behavioural) are indeed distinguishable, although related (Breckler, 1984; Chiu, 2002; Maio & Haddock, 2010).

The *affective component* refers to the individuals' feelings and emotions in relation to a given object, event or situation (Maio & Haddock, 2010). By this construct, attitudes are constructed based on an individual's emotional response to the object, and whether the response provides favourable or unfavourable feelings (Canuto et al., 2014; Eagly & Chaiken, 1993). One example of how affect may alter or create attitudes is if one relates an object to an

unfavourable emotion, such as fear, this may cause a negative attitude towards this object (Maio & Haddock, 2010).

The *cognitive component* refers to our knowledge, beliefs and thoughts about an object (Chiu, 2002; Maio & Haddock, 2010). In this case, peoples' attitudes towards an object are based on whether the knowledge and information they have about the object are favourable or unfavourable (Maio & Haddock, 2010). Some theorists, including Fishbein and Ajzen (1975, as cited in Chiu, 2002), further suggest that there is no separate affective component, and that feelings towards an object are simply based on cognition.

Lastly, the *behavioural component* refers to both the individual's previous experiences with an object, and their actions towards an object based on their affective and cognitive attitudes (Weiner, 1998, as cited in Chiu, 2002). In other words, the way that we act towards a given object can be associated with a similar object at a later occasion, and cause an attitude behaviour based on that (Maio & Haddock, 2010). Furthermore, the feelings and knowledge that we have about an object, whether they are favourable or unfavourable, will result in a certain behaviour towards that object (Chiu, 2002). For instance, Ajzen and Fishbein (2005) suggest that an individual is more likely to perform an action if he/she believes that it will provide more advantages than disadvantages.

Previous studies have investigated the role of these different components in attitudes and attitude change (e.g. Eagly, Mladinic & Otto, 1994; Fabrigar & Petty, 1999; Pooley & Connor, 2000). For instance, Eagly and colleagues (1994) did a study on attitudes towards social groups and social policies. The study investigated how the cognitive and affective components could predict their attitudes. The results of the study show that both affect and cognition could predict some attitudes, but that cognition was the most important predictor of the two (Eagly et al., 1994). This finding was found for both attitudes towards social groups and towards social policies (Eagly et al., 1994). These findings suggest that attitudes are mainly influenced by the cognitive component of attitudes. Another study done by Pooley and O´Connor (2000) on attitudes towards environmental issues, however, found somewhat contradicting results. Consistently with the findings of Eagly and colleagues (1994), this study suggested that both affect and cognition may contribute in predicting attitudes towards environmental issues (Pooley & O´Connor, 2000). However, this study suggests that emotions and beliefs (i.e. the affective component) is the more important predictor of attitudes towards

environmental issues, and that such affect should be used more frequently in environmental education (Pooley & O´Connor, 2000). Thus, findings from this study suggest that the affective component is most important in predicting attitudes (Pooley & O´Connor, 2000). The findings of these two studies are therefore somewhat contradicting, and it remains unclear whether affect or cognition is the stronger predictor of attitudes. The findings may also suggest that attitudes towards environmental issues are more strongly predicted by affect and that attitudes towards social groups (including refugees) are more strongly predicted by cognition. However, this is still unclear, and the current thesis will therefore aim to further examine the effect of the different components.

2.1.2 Theories of Reasoned Action and Planned Behaviour

Ajzen and Fishbein (2005) take the behavioural construct a step further, and suggest that there are three types of beliefs that alter behaviour. The three types of beliefs are behavioural beliefs, normative beliefs and control beliefs. Behavioural beliefs refer to the potential consequences of performing the behaviour, such as whether it will be beneficial or not (Ajzen & Fishbein, 2005). Normative beliefs refer to how social pressure or social norms alter behaviour, and control beliefs refer to how the individual perceives their likeliness to manage and complete the behaviour (Ajzen & Fishbein, 2005). It is important to note that such beliefs "may be inaccurate, biased, or even irrational" (Ajzen & Fishbein, 2005, p.193), but that they nevertheless affect behaviour (Ajzen & Fishbein, 2005).

Ajzen and Fishbein (2005) put together their theory of reasoned action and theory of planned behaviour, and created one more complex model (see the model in Ajzen & Fishbein, 2005, p. 194 "The theories of reasoned action and planned behavior"). This model suggests that there are three categories of background factors that affects peoples' attitudes and beliefs (Ajzen & Fishbein, 2005). These are individual factors, social factors, and information. The individual factors include personality, intelligence, emotions, mood, and experience, and the social factors include education, age, gender, culture and religion. Lastly, peoples' access to information about an object or a topic may affect attitudes, thereby their knowledge of the object, media, and different potential interventions (Ajzen & Fishbein, 2005). There are some similarities between this model and the multicomponent model of attitudes, where information is partly consistent with the cognitive component, and individual factors are somewhat consistent with the affective component.

The main suggestions of this model are that the person's beliefs are closely linked to their attitudes about an object, and that attitudes are an important contributor in determining the individual's intentions (Ajzen & Fishbein, 2005). Furthermore, an individual's intentions are suggested to closely predict their behaviour (Ajzen & Fishbein, 2005). Therefore, the theory ultimately suggests that an individual's background factors, such as knowledge and emotions, can alter the individual's attitudes, and in turn their intentions to and execution of acting upon this phenomenon (Ajzen & Fishbein, 2005). The theories are even more complicated than what I have explained now (for the full overview, see Ajzen & Fishbein, 2005), but I have chosen to focus on these parts for the purpose of this thesis.

This model of reasoned action and planned behaviour (Ajzen & Fishbein, 2005) is also very much relevant for this current thesis. In consistence with the multicomponent model of attitudes (e.g. Breckler, 1984; Chiu, 2002; Maio & Haddock, 2010), this model also suggests that background factors (such as cognition or affect) may be important in developing attitudes (Ajzen & Fishbein, 2005). Moreover, according to the theories of reasoned action and planned behaviour (Ajzen & Fishbein, 2005), intentions can be an indicator of attitudes. As the current thesis will focus on attitudes towards climate change and refugees, it may be interesting to include a measure of intentions because this may suggest more about the individual's actual behaviour than their self-reported attitudes. The current thesis does not only wish to understand how attitudes can be altered though the cognitive and affective components, but also the effect this can have on the behavioural component (Chiu, 2002; Maio & Haddock, 2010), or reasoned and planned behaviour as presented in Ajzen and Fishbein's (2005) model. As the theories of reasoned action and planned behaviour suggests that intentions are an important predictor of their behaviour (Ajzen & Fishbein, 2005), the current thesis will also include a measure of intentions.

2.1.3 Function of attitudes

American psychologist Daniel Katz (1960) focused on the functions of attitudes for the individual. He proposed that attitudes served four main functions for the individual, and called these the *instrumental* function, the *ego-defensive* function, the *value-expressive* function, and the *knowledge* function.

The *instrumental* (also called *adjustment*) function refers to the individuals wish to avoid punishment and receive reward for their attitudes (Katz, 1960). This thereby suggest that the

individual is more likely to hold an attitude that is perceived as being rewarding compared to an attitude that one could be punished for (Katz, 1960).

The *ego-defensive* function refers to how attitudes may be used to protect oneself from the harsh realities about them self and the world (Katz, 1960). In this sense, attitudes are used as a kind of defence mechanism, where the individual aims to defend herself from the reality of who she is or the danger of the outer world (Katz, 1960).

In contrast to the ego-defensive function where attitudes are used to conceal the individual's true nature, the *value-expressive* function is when attitudes are used to highlight the individual's most central values (Katz, 1960). In these cases, an individual may hold attitudes that confirm his self-concept and self-identity, rather than holding attitudes that are socially desirable or socially rewarding (Katz, 1960).

The last function that Katz (1960) outlines, is the *knowledge* function. Here, attitudes can contribute in creating meaning of the knowledge that one acquires (Katz, 1960). This is possible, because attitudes can contribute in organizing or setting frames of reference to acquired information (Katz, 1960; Maio & Haddock, 2010).

When analysing the results of the current thesis, it is not unlikely that some sort of pattern will appear in terms of attitudes. For instance, it may be that there are generally positive attitudes, or it may be that those with positive attitudes towards climate change also have positive attitudes towards refugees. Understanding the functions of attitudes (as suggested by Katz, 1960) will therefore be relevant in interpreting the results. For instance, if people in general would suggest that climate change is not human made, but simply a result of natural variations, there would be reason to discuss whether the ego-defensive function (Katz, 1960) plays a significant role. Here, one could argue that people hold such attitudes to protect themselves from the harsh reality of climate change (Katz, 1960). Moreover, as this thesis will examine the cognitive component of attitudes, it may be important to be aware of the knowledge function of attitudes, and that attitudes can contribute in creating meaning to new and existing knowledge (Katz, 1960).

2.2 Attitudes towards refugees

A number of studies have examined attitudes towards refugees and immigrants (see for instance Crawley, 2005; Kessler et al., 2010; Murray & Marx, 2013; Schweitzer, Perkoulidis, Krome, Ludlow & Ryan, 2005; Statistics Norway (SSB), 2016; SSB, 2017). It has been suggested that immigration and the need for integration is one of the biggest challenges of current, modern societies (Kessler et al. 2010). For these reasons, peoples' attitudes towards refugees are interesting. According to SSB's 2016 report on attitudes towards immigrants, there was an increased scepticism towards immigrants and immigration from the previous year. In addition to the scepticism, less Norwegians were in contact with immigrants, fewer appreciated the work- and cultural contributions of immigrants, and more Norwegians believed that immigrants contribute to insecurity in the community (SSB, 2016). Furthermore, the study showed that an increasing part of the population thought that immigrants were a cause of insecurity for the society (SSB, 2016).

The study shows that one third of Norwegians reports thinking it should be more difficult than at present to get access to residence permits in Norway (SSB, 2016). This percentage of 33% is an increase from the previous year. Simultaneously, there was reported a decrease in the percentage of people who thought it should be easier to get residence permits (SSB, 2016). It is, however, important to note that the majority of the population (51%) were happy with the way it is today, and did not think it should be easier or more difficult.

When comparing the results that are reported in December of 2016 to those of 2015, it seems to be an overall average of increasingly negative attitudes towards refugees (SSB, 2016). One explanation for this, as mentioned in the report, may be that the 2016 survey was conducted after the so-called refugee crisis in 2015, where large group of asylum seekers came to Norway (and the rest of Europe) (SSB, 2016). However, the report for 2017 was recently published, showing reversed results (SSB, 2017). These results show attitudes that are more similar to those of 2015, prior to the refugee crisis, than those of 2016 (SSB, 2017). An indication of the changes in attitudes throughout the previous nine years are presented in Figure 1, using two statements of the SSB (2016; 2017) studies as examples. The findings that results in 2017 were more similar to those of 2015 (SSB, 2017), may suggest that the immediate threat of the refugee crisis scared people, but that reassurance that the issue was temporary (as experienced in 2017) caused a reduced threat. Therefore, one may suggest that

attitudes towards refugees are affected by the personal and immediate experience of the issue, and that the experienced direct threat influences such attitudes.

There are several psychological explanations as to why negative attitudes towards refugees occur. For instance, social identity theory (Tajfel & Turner, 1979) suggest that discrimination towards an out-group (i.e. a group of which I am not a member) is caused by an effort to enhance negative features of that out-group and simultaneously enhancing positive features of the in-group (i.e. a group of which I am a member). Another theory is that of stereotyping, where we tend to overgeneralise certain beliefs about a group of people (Cardwell, 1996). With recent Islamic extremist terrorist attacks posing a threat, we may tend to overgeneralise a fear of Muslims or other immigrants as potential terrorists or criminals, which may explain why the SSB (2016) report showed increasingly negative attitudes towards immigrants in 2016. It is, however, somewhat more difficult to explain the change to more positive attitudes in 2017. One theory may be that the pressure of the refugee crisis is less apparent in 2017 than it was in 2016, and that the experienced threat therefore decreases. Despite these 2017 findings, it is important and interesting to examine attitudes towards refugees, particularly because attitudes seem to vary somewhat from year to year (see Figure 1).

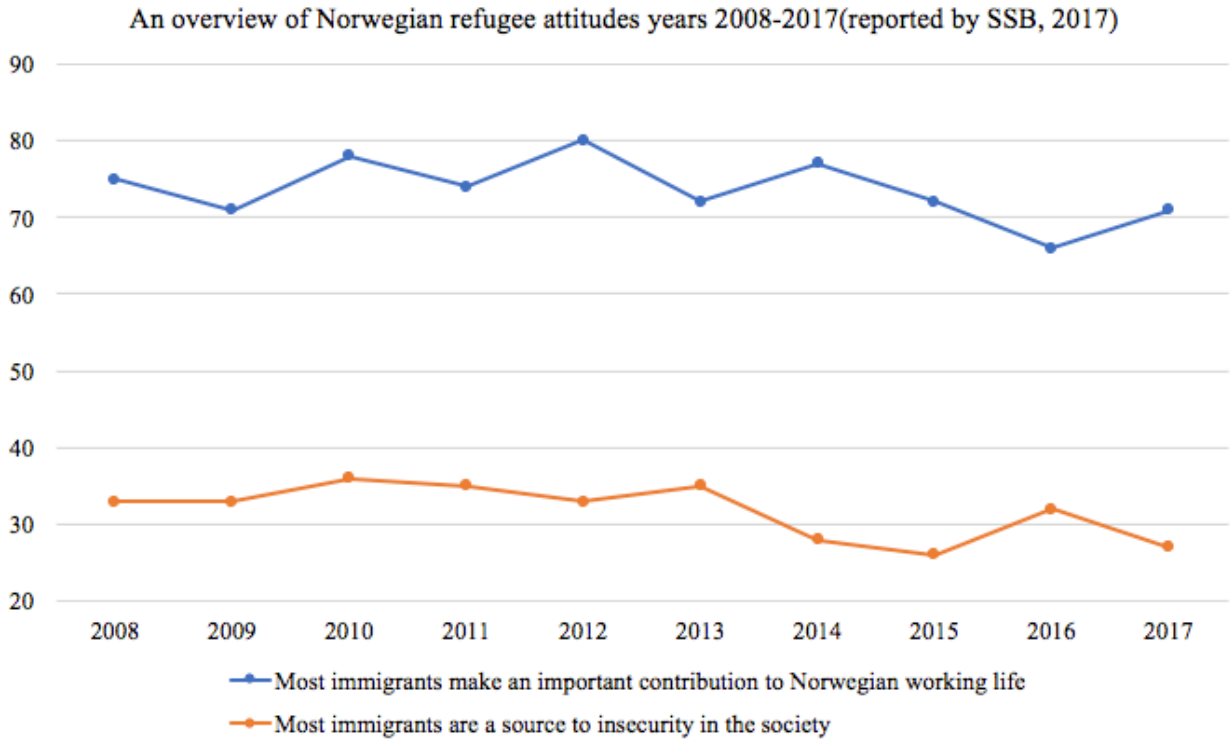


Figure 1: An overview of percentages (y-axis) of Norwegians that reported to agree or strongly agree with two of the statements of the SSB studies from year 2008-2017 (adapted from SSB, 2017).

2.3 Attitudes towards climate change

A lot of research has been conducted on people's attitudes towards climate change (see for instance Austgulen, 2012; Austgulen & Stø, 2013; Christensen & Knezek, 2015; Corner, Whitmarsh & Xenias, 2012; Leiserowitz, Maiback, Roser-Renouf, Feinberg & Howe, 2013; Rudman et al., 2013; Smith, Kim & Son, 2017). For instance, a master thesis written in cooperation with the Norwegian National Institute for Consumer research (SIFO) examined attitudes towards climate change, media and politics (Austgulen, 2012). The study found that the majority (about 68.4%) of participants believed climate change to be caused by human activity, but that also a large number of participants (42.4%) believed that climate change is a result of natural temperature change. As these findings adds up to 110.8% there seems to be some confusion or uncertainty as to whether climate change is in fact caused by human activity or natural changes. This contrasts with previous findings which suggest that 96% of Norwegian climate scientists believe that climate change has been caused by humans (Christensen, 2008, as cited in Austgulen & Stø, 2013). This difference may be in support of the cognitive component in the multicomponent model of attitudes (Chiu, 2002; Maio & Haddock, 2010), in that people who have access to and comprehend more information has more positive attitudes. Furthermore, 29.4% believe that climate change is given too much attention, suggesting that almost 30% are uncertain about the severity of climate change (Austgulen, 2012). Moreover, 64.4% of the participating individuals reported being worried about the potential consequences climate change may have on humans (Austgulen, 2012). Another study from the United States showed that most Americans believe climate change is happening (63%), but slightly fewer than Norwegians (as compared to Austgulen's 2012 findings) believe climate change is caused by human actions (49%) (Leiserowitz, 2013).

The findings from this mentioned study (Austgulen, 2012) suggests that there is a split in attitudes towards climate change, where some people believe it is caused by humans while others believe it is due to normal variations in the temperatures of the Earth. However, the majority of participants reported being worried about potential consequences of climate change (Austgulen, 2012). The findings may suggest that people of Western countries, who have not directly experienced severe effects of climate change, may lack an understanding of how it affects people in other parts of the world. APA's report on psychology and global climate change puts emphasis on the fact that climate change may be difficult to perceive as

threatening when individuals do not personally experience it (APA, 2009), which is often the case in Western countries like Norway. While we can use associative processing when we experience a threat directly, understanding the risk of climate change requires a more analytical processing (APA, 2009). Such analytic processing requires more effort, and this may therefore explain why Western individuals find it difficult to perceive the risk of climate change when it is not directly experienced. The findings of the study in whole also suggest that people are not fully ready to take responsibility, where many still believe that human activity is not the cause.

3 The present study

As seen, the change in climate over the recent years have been suggested to be mainly due to human activity (APA, 2009; IPCC, 2007). Furthermore, such climate change lead people to flee from their homes (FN-sambandet, 2017; Kvåle, 2014; Singh, 2015). The suggested continued increase in climate change events (Kvåle, 2014; WMO, 2016) thereby also suggests that a large number of people will continue to flee from their homes in the future as a consequence of climate change (FAO, WFP & IFAD, 2012), potentially even to Norway. We have also seen that Norwegians do not see a clear connection between their pollution and immigration (TNS Gallup, 2016). However, there is an actual connection, where climate change causes people to flee, and our pollution may contribute to an increased number of refugees in the future (Boano et al., 2008; Costello et al., 2009; FN-sambandet, 2017; FAO, WFP & IFAD, 2012; IPCC, 2007; Singh, 2015).

We have seen that there has been done quite a bit of research on people's attitudes towards both refugees and climate change, and that these attitudes vary (Austgulen, 2012; Austgulen & Stø, 2013; SSB, 2016; SSB, 2017; Leiserowitz, 2013; Murray & Marx, 2013; Pooley & Connor, 2000; Rudman et al., 2013). However, of present knowledge, no previous articles have investigated the relation between migrant-attitudes and climate-attitudes to assess the understanding of climate change as a contributing factor of the increased refugee-issues. The current study therefore aims to examine these relationships, and more specifically whether peoples' knowledge about and emotions towards climate refugees may contribute in creating more positive attitudes and intentions. This is because it may be important that people understand the effect of their climate actions (APA, 2009). Moreover, an understanding of such attitudes and general comprehension of these issues may be necessary in creating interventions and awareness among the general population. For instance, if it turns out that people have little comprehension of how climate change and contamination can lead to an increased refugee-crisis, such information should be presented more. Furthermore, it would then potentially be important to create interventions, where people are made aware of how their carbon footprint can affect the refugee-crisis. This will include not only the effect on other individuals (i.e. climate refugees), but the effects that this may have on their society (by a potential increased numbers of refugees). Because this connection does not seem to be salient in people's minds, the present study wishes to examine the following, previously mentioned research question "How may information and feelings about climate refugees

contribute in altering intentions and attitudes towards climate change and refugees?". This study thereby aims to contribute in understanding the psychology of climate change and how the field of psychology may be important in developing ways of reducing pollution, as desired by APA (2009). Moreover, there are at present some uncertainty regarding the effect of affect and cognition on attitudes (Eagly et al., 1994; Pooley & Connor, 2000). For instance, while Eagly and colleagues (1994) suggested that the cognitive component was the most important predictor of attitudes, Pooley and O´Connor's (2000) findings suggested that the affective component was the most important. The current study therefore wishes to further examine the role of affect and cognition on attitudes, and specifically in relation to climate change and climate refugees.

The current thesis will consist of two separate but linked studies. Together, these studies will examine how knowledge about and feelings towards climate refugees may contribute in altering peoples' attitudes and intentions towards climate change, refugees and climate refugees. This thesis will thereby include all the three attitude components, as suggested by the multicomponent model of attitudes (Breckler, 1984; Chiu, 2002; Eagly & Chaiken, 1993; Maio & Haddock, 2010). The first study will examine how providing information about climate refugees may contribute in altering attitudes towards climate change and refugees. Here, a third combined phenomenon will be used as an effort to create more positive attitudes towards both climate change and refugees. Both the multicomponent model of attitudes, the theory of reasoned action and planned behaviour, and Katz proposed functions of attitudes, suggest that knowledge and information is closely linked to attitudes (Ajzen & Fishbein, 2005; Breckler, 1984; Chiu, 2002; Eagly & Chaiken, 1993; Katz, 1960; Maio & Haddock, 2010). It is therefore reason to believe that information about climate refugees will have the potential of altering attitudes towards climate change and refugees. Such findings would be consistent with the previously mentioned findings of Eagly and colleagues (1994). The second study will focus on affect and behaviour. This study will investigate how presenting a story of a climate refugee may elicit emotions, and how this emotional activation may alter participants' intentions to act upon climate change and climate refugees. As it has been suggested that intentions are a good predictor of behaviour (Ajzen & Fishbein, 2005), the measures of intentions will be used to examine the behavioural component (Ajzen & Fishbein, 2005; Breckler, 1984; Chiu, 2002; Eagly & Chaiken, 1993; Maio & Haddock, 2010). Furthermore, the role of affect in attitudes and intentions is also included in all the mentioned theories (Ajzen & Fishbein, 2005; Breckler, 1984; Chiu, 2002; Eagly & Chaiken,

1993; Katz, 1960; Maio & Haddock, 2010). This again has led to the belief that evoking emotions may contribute in changing peoples' intentions to act. Finding such an effect of emotions on attitudes would be consistent with the previously mentioned findings of Pooley and O´Connor (2000). Both studies of this current thesis have been ethically approved by the Department of Psychology's internal research ethics committee at the University of Oslo.

4 Study 1

The first study will focus on the knowledge construct of attitudes. Knowledge and information has often been suggested to play a significant role in attitudes (Ajzen & Fishbein, 2005; Breckler, 1984; Chiu, 2002; Eagly & Chaiken, 1993; Katz, 1960; Maio & Haddock, 2010) and may therefore also be important in attitude change. It has also been suggested that information about climate change may be the one thing that will have the ability to reduce scepticism and potentially also negative attitudes towards climate change (Austgulen & Stø, 2013; Stamm, Clark & Eblacas, 2000). Furthermore, APA suggests that peoples' willingness to act upon climate change depends on their understandings (APA, 2009). While the behaviours of acting upon climate change is not tested in this first study, the individuals' attitudes play an important role in their likeliness to act, as suggested by Ajzen and Fishbein's (2005) theories of reasoned action and planned behaviour.

Of present knowledge, no previous articles have investigated the relation between refugee-attitudes and climate-attitudes. Moreover, no previous articles seem to have assessed how information about climate refugees may alter attitudes towards climate change or refugees. This first study therefore wishes to examine these relationships by aiming to answer the following research question "How may information about climate refugees alter Norwegian attitudes towards climate change and refugees?". Information about such attitudes and how they can be changed, as well as general comprehension of these issues may be necessary in creating interventions and awareness among the general population.

The effect of information on climate and refugee attitudes will in this first study be tested using 'true or false'-questions as a cognitive manipulation. Presenting participants with such questions creates an active learning, where participants must reflect upon their present knowledge. Moreover, this allows us to examine the existing knowledge of participants. Furthermore, the questions will be followed by a short explanation of the correct answer. This enables participants to get the correct information about the topics, and will hopefully create a better understanding and increase their knowledge of climate refugees. To enable comparison, half of the participants will be presented with 'true or false'-questions about climate refugees (experimental group), while the other half will be presented with questions about the human body (control group). The effect of the information on attitudes will be tested by measuring attitudes towards climate and refugees before and after this manipulation. It is important to

note that a biased attitude response can occur when the desied attitude is too obvious to the participant (Ajzen & Fishbein, 2005). One suggested way of preventing a biased effect is by making the purpose of the measurement less apparent, for instance by adding control items (Ajzen & Fishbein, 2005). To prevent a biased attitude response in this study, control items are added in all pre- and post-manipulation measures of this study.

4.1 Hypothesis

There are several possible outcomes of the results for this study, and there are therefore several hypotheses for the outcome. Firstly, it is not expected that the majority of participants will report already having negative attitudes (i.e. climate change denial or refugee sceptic) towards neither refugees nor climate change. In other words, one can expect that participants will report mostly positive (i.e. pro-climate and refugee friendly) or neutral attitudes towards both climate change and refugees. Therefore, we may expect to see somewhat of a ceiling effect, where participants already are concerned about both issues. Nevertheless, we do expect a certain variation in attitudes between individuals, as the sample population will hopefully allow room for change. This hypothesis is based on findings from previous studies (e.g. Austgulen, 2012; Austgulen & Stø, 2013; SSB, 2016). Secondly, it is predicted that there will be no significant difference between the two condition groups (experimental vs. control) before the manipulation, as the participants were randomly assigned to groups.

Thirdly, participants that are being presented with 'true-or-false'-questions about climate refugees are expected to report more positive attitudes towards climate change and/or refugees after the manipulation than the control group. Furthermore, it is hypothesised that participants in the experimental condition will report having more positive attitudes towards both or either climate change and/or refugees after the manipulation compared to prior. The opposite is expected for the control group, where these participants are expected to report similar attitudes pre- and post- manipulation. If these hypotheses are confirmed, we may suggest that information about climate refugees can be used in interventions to change attitudes towards both or either climate change or refugees. Such an understanding may therefore be interesting in many levels of society and globally. The design of the study was thus a 2 (condition: experimental vs. control) by 2 (time: pre- vs. post-measure) factorial design, with condition varying between participants and time varying within participants. The third hypothesis translates to an interaction effect between both factors. An a-priori power

analysis using G*power shows that we need 128 participants for 80% power to detect a small effect (f=.25) with an alpha level of p=.05. We thus aimed for 128 participants in this study.

4.2 Methods

4.2.1 Participants

One hundred and sixty-six participants took part in the current study. 51 were excluded for completing less than 50% of the study and one was excluded for wishing to participate only for educational purposes. This lead to 114 responses being included in the analysis of this study.

The participants were individuals living in Norway that volunteered to participate. Participants were recruited through three different channels: Facebook, email, and the SONA student pool. For ethical reasons, all participants were required to be over 18 years of age, and the participants were aged 18 to 86 years, with a median age of 24. The highest achieved level of education for the participants was also recorded. 15% of participants had finished high school/A-levels or similar, 42% of participants had an undergraduate degree or similar, and 22% had a postgraduate degree or similar. 55,6% of the participants were students while participating in the study. The sample therefore had a wide diversity in level of education and age. 32,7% of the individuals were male, and 67,3% were female.

4.2.2 Apparatus

Participants were required to have access to a computer, tablet or smart phone with internet connection. The questionnaire was created and administered through qualtrics.com.

4.2.3 Materials

The experiment was divided into three main parts: (a) pre-attitudes, (b) knowledge, and (c) post-attitudes. All questions and the order of the different parts are presented in Appendix A. The questions within each part of the study were randomized, to control for potential order effects. The questions of both the pre-attitudes and post-attitudes-parts assessed attitudes towards refugees and climate change. The questions were adapted from previous research on climate change and refugee attitudes (see Appendix A for overview). The ‘true or false’-questions assessing and providing knowledge were created based on information from several different sources (Costello et al., 2009; FAO, WFP & IFAD, 2012; FAO, WFP & IFAD,

2015; FN-sambandet, 2017; IDMC, 2015; IPCC, 2014; Kvåle, 2014; Lewis, 2015; Meyers, 2005, as cited in Boano, Zetter & Morris, 2008; Singh, 2015; WMO, 2016).

Attitudes towards refugees

The questions that examined participants' attitudes towards refugees were from SSB's (2016) survey on Norwegian attitudes towards refugees. Ten questions from this study were used to examine attitudes towards refugees. Eight of these questions were claims to which participants would respond how much they agreed or disagreed, using sliders. The sliders were presented as a horizontal line with "strongly disagree" on the far left and "strongly agree" on the far right. The sliders were presented without numbers along the line, but numbers appeared when participants would drag the sliders (see Appendix E for an example of the study layout with sliders). The far left (strongly disagree) had a score of zero, and the far right had a score of 100. As an example, one of the claims was "Most immigrants are a source to insecurity in the society" (SSB, 2016, p. 54). The final two questions about refugees assessed (a) how easy or difficult participants thought it should be for refugees to get residence permits in Norway, and (b) whether the participants are in any contact with refugees in their daily life, and in what contexts. All of these questions were chosen for the current study as they are simple to understand, and seemed to have the potential of giving a clear picture of attitudes towards refugees in Norway. The current study wishes to examine how attitudes can change, and therefore the results of the SSB (2016) study will not be used in the analysis. In addition to these questions, filler items were included to prevent participants from understanding the expected outcome and answering accordingly. There were four filler items included in this refugee attitudes measure.

Attitudes towards climate change

Twelve questions were used to assess participants' attitudes towards climate change. These questions were adapted from the previously mentioned master project that was conducted in cooperation with SIFO (Austgulen, 2012). In consistence with the questions about attitudes towards refugees, these questions were presented as statements to which participants were to rate the degree to which they agree or disagree using sliders. The statements included questions of whether participants understood climate change as created by humans or not, whether questions of climate change are over-exaggerated, and whether the participants were worried about the consequences of climate change. I used these twelve statements as they seemed to give a clear understanding of the attitudes towards climate change. Also in this

part, filler items were included. There were five filler items included in this climate attitude measure.

Knowledge

There were two sets of knowledge-questions in this study: (a) knowledge about climate refugees, which were the experimental questions, and (b) knowledge about the human body, which were the control questions. All of these questions were presented as 'true or false'-questions, followed by the correct answer and an explanation of the answer. This explanation served as information to the participants, and was included to make sure that participants gained new knowledge. The questions had three response alternatives: (a) true, (b) neither true or false, and (c) false. Independently of which alternative they chose and which was correct, all participants were presented with the information following the question. All questions and the given information is presented in Appendix A.

The questions about climate refugees were created for this study, and were based on information from several different sources (see Appendix A for overview)**.** There were seven questions in this part of the study. The questions included an assessment of the understanding that climate change can increase the number of refugees and that actions to reduce climate change may prevent migration. A control condition with questions about the human body was included to enable comparison of the two conditions. The questions about the human body were adapted from an online quiz ("A Quiz on the human body", n.d.), and the answers were verified by source-checking before being included in the study (see Appendix A). The control condition also included seven 'true or false'-questions.

4.2.4 Design

The current experiment has a design with two factors, one varying within and one between participants. The within-subjects variable is *time* (pre- vs. post-manipulation). The between-subjects variable is conditions (experimental vs. control) to which participants were randomly assigned. The two dependent variables were attitudes towards refugees coming to Norway and attitudes towards climate change.

4.2.5 Procedure

Before starting the actual experiment, participants were presented with an informed consent form, in which they were given information about the study. To continue to the actual experiment, participants had to agree with the terms and conditions of this form. Participants could choose to complete the study in Norwegian or English (only the English version is included in Appendix A). Once this was done, participants were asked whether they wanted to participate only for educational purposes or for educational and experimental purposes. This part was included as this is a requirement when collecting data through the SONA-system.

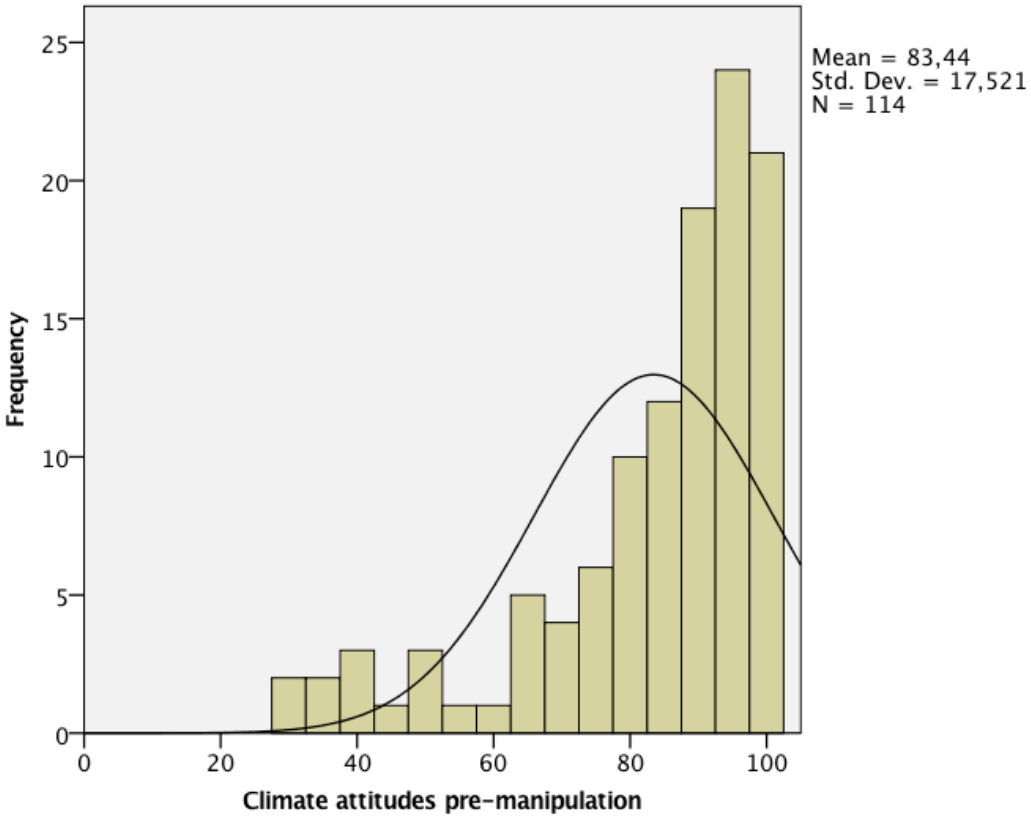
Before starting the actual experiment, participants were asked to perform a test of the response method by dragging a slider all the way to the right. This was included to make sure all participants understood how to respond to the questions of the experiment. After completing this rehearsal trial, participants completed 15 of the items of the scale about attitudes towards refugees and attitudes towards climate change. Next, they answered the knowledge questions and received feedback. Half of the participants were presented with questions about climate refugees, while the other half were presented with questions about the human body. Thereafter, participants indicated how easy it should be for refugees to get residence permits in Norway, before they answered the remaining 15 statements of the attitude scales. After this, participants answered a few follow-up questions about their experience with the study and the facts that were presented. These questions were followed by some demographic questions, including gender, age, level of education, nationality and whether they were a student at present. The study ended with a debriefing, where participants could read about the purpose of the experiment, and follow links to further information.

4.3 Results

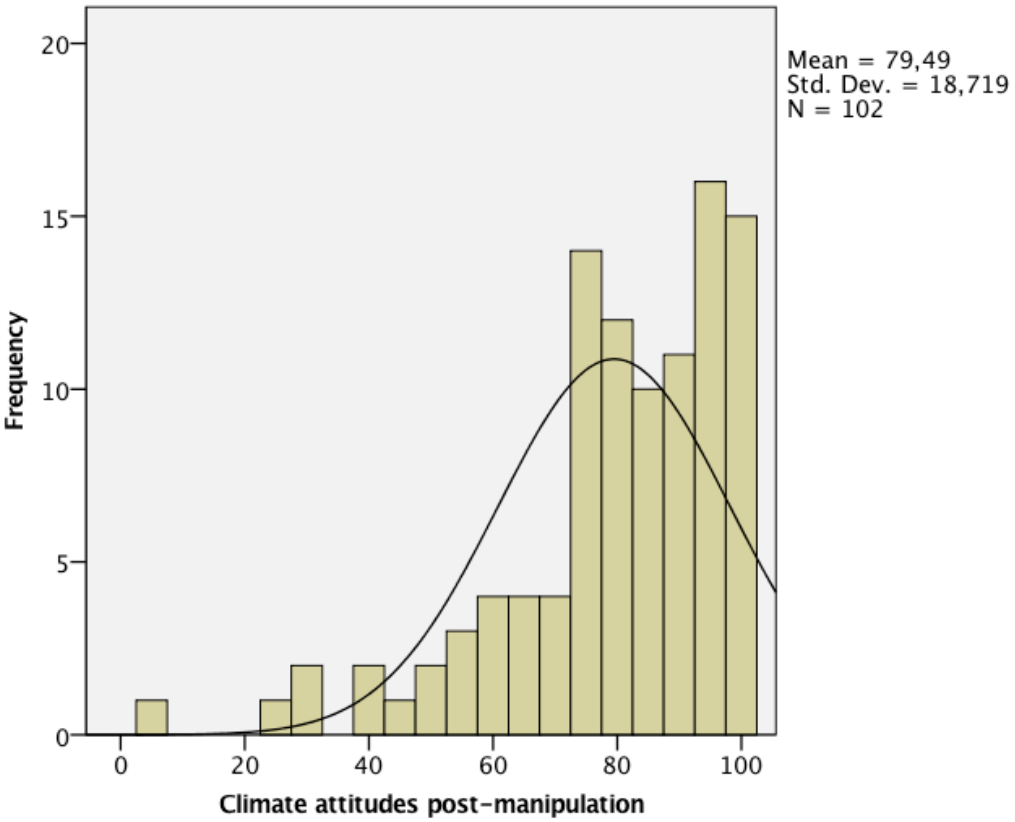
Firstly, all participants that did not finish more than 50% of the study and all participants that only wanted to participate for educational purposes were excluded from the analysis. This left 114 responses to be part of the analysis. The different questions were coded as either negative or positive, where the negative questions were reversed in points. An overview of the questions and which were reversed can be found in Appendix A. Positive questions were those where a higher score indicated a more positive attitude towards climate change or refugees, and the negative questions were the opposite.

The first part of the analysis was calculating the Cronbach's alpha for all items within each scale. In other words, the reliability for all questions assessing attitudes towards climate change pre-manipulation were calculated, and so on. The results of the different Cronbach's alpha showed high internal reliability in three of the four scales: attitudes towards climate change pre-manipulation (alpha=.82), attitudes towards refugees pre-manipulation (a=.82), attitudes towards climate change post-manipulation (a=.73). The alpha coefficient of the attitudes towards refugees post-manipulation scale did not show a high internal reliability (a= .52). Therefore, the standardised scores for these items were calculated. This resulted in a new Cronbach's alpha for attitudes post-manipulation of a= .72, which can be considered a satisfying internal reliability.

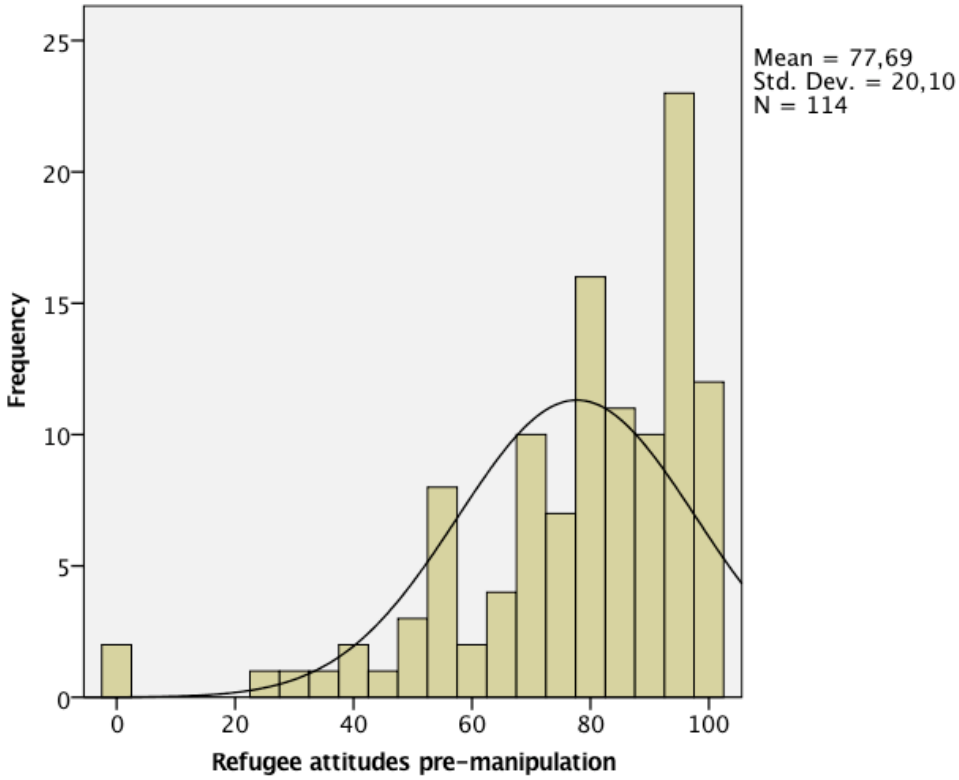
As all items within each scale had sufficient internal reliability, I computed new variables for the overall scores of each scale by calculating the mean of the different scores, which could range between 0 (very negative attitude) and 100 (very positive attitude). Thus, four new variables were created: attitudes towards climate pre-manipulation, attitudes towards climate post-manipulation, attitudes towards refugees pre-manipulation and attitudes towards refugees post-manipulation. The distribution, mean and standard deviation (SD) of all these new scales are presented in graphs 1-4. These were used to compare the results before and after the 'true or false'-questions, thus pre- and post- manipulation. Furthermore, the difference between the pre- and post-manipulation scores were compared between those in the control condition (questions about the human body) and those in the experimental condition (questions about climate refugees).



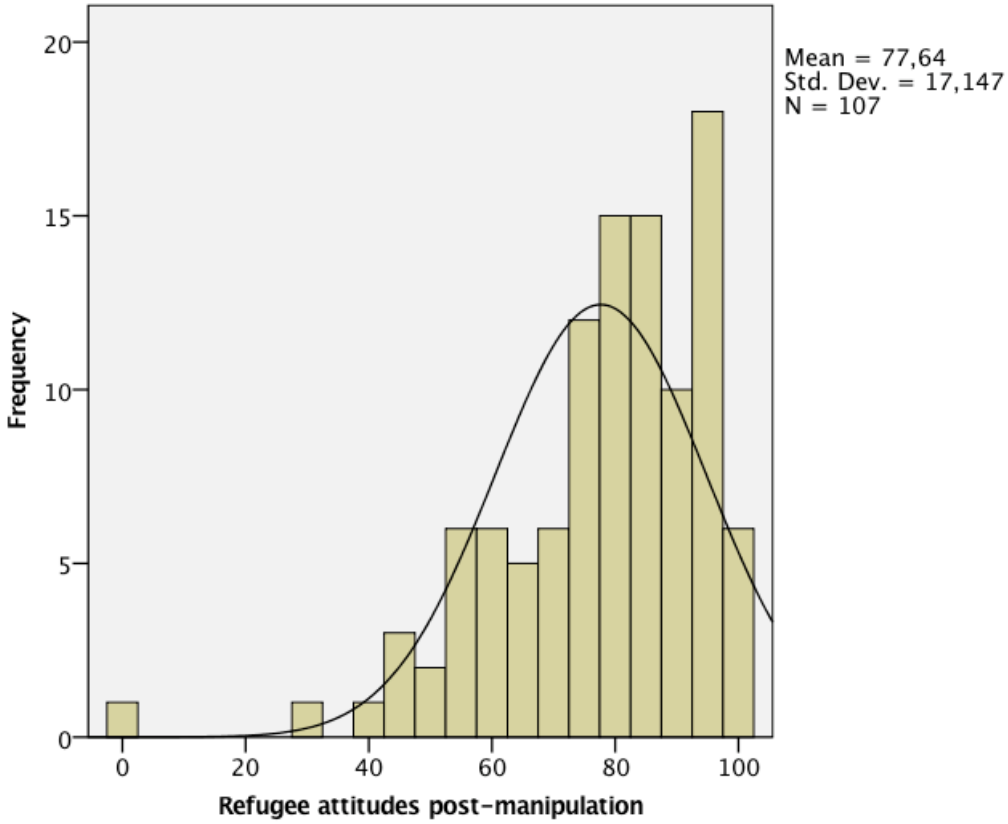
Graph 1: Distribution, mean and SD of scores for attitudes towards climate change pre-manipulation



Graph 2: Distribution, mean and SD of scores for attitudes towards climate change post-manipulation



Graph 3: Distribution, mean and SD of scores for attitudes towards refugees pre-manipulation



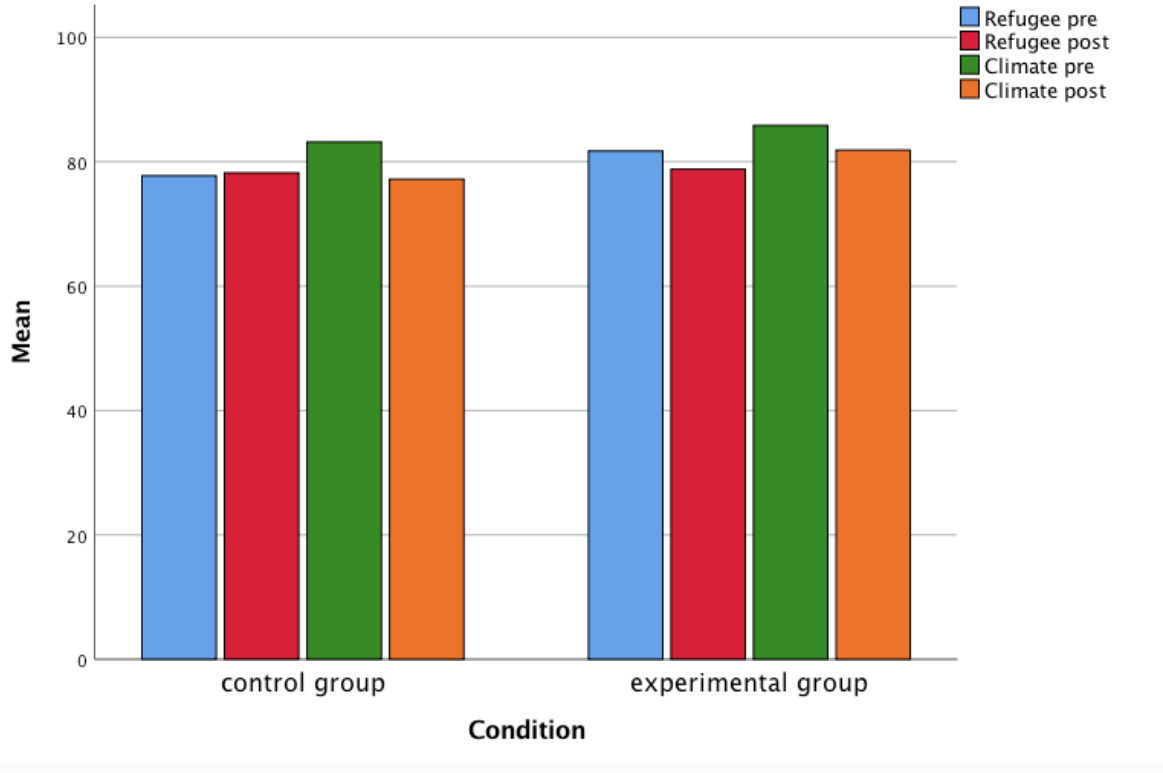
Graph 4: Distribution, mean and SD of scores for attitudes towards refugees post-manipulation

Next, the score for answers to the experimental manipulation items were calculated. Firstly, seven new scales were created, where participants were assigned a score of 1 if they had answered the question correctly, and 0 if they had answered wrong. This also meant that people who answered "neither true nor false" got a score of 0. These seven new variables were used to create a mean for correct answers. This showed a mean (SD) of .75 (.16), suggesting that participants had a relatively good knowledge about climate refugees. The results also show that a total of 7 participants answered all seven questions correctly, 17 of participants answered correctly on 6 of the questions, and 20 participants answered correctly on 5 questions. The question that most participants answered correctly was "Climate change can lead to drought and result in famines", where 98,2% of participants gave the correct response. The question that least participants answered correctly was "Climate refugees has the same rights as other refugees", where only 40% gave the correct answer. While these answers show that participants in large had a seemingly good knowledge of climate refugees, there were some variation, both between different participants and between questions.

Thereafter, I conducted correlations to test how knowledge about climate refugees (i.e. number of correctly answered items) correlated with the four new variables. The results showed that knowledge about climate refugees did not correlate significantly with any of the four items. The correlation between climate refugee knowledge and refugee attitudes pre-manipulation showed $r(57)=.254$, $p=.056$, and the correlation between climate refugee knowledge and refugee attitudes post-manipulation was $r(54)=.216$, $p=.117$. Moreover, the correlation between climate refugee knowledge and climate change attitudes showed $r(57)=.254$, $p=.056$ pre-manipulation, and $r(50)=.267$, $p=.061$ post-manipulation.

Next, a t-test was conducted to control that there was no difference between the attitudes of participants in the two conditions before the manipulation. No significant difference was found between the conditions in attitudes towards climate change pre-manipulation, $t(112) = -.579$, $p= .56$. Furthermore, there was no significant difference between the groups in attitudes towards refugees pre-manipulation, $t(112) = -.442$, $p=.66$. These findings were as predicted, and confirms that the attitudes of participants did not differ significantly before the manipulation, and thus the two groups had similar starting points with regards to attitudes. An overview of the two groups means in attitudes towards climate change and refugees pre- and post-manipulation is presented in graph 5.

A 2-factorial ANOVA with 2 (condition: experimental vs. control, between) x 2 (time: pre vs. post, within) on climate attitudes revealed neither a significant effect of condition $F(1, 100) = 1.23$, $p = .74$, nor of time, $F(1, 100) = .70$, $p = .41$, nor an interaction of Time x Condition, $F(1,100) = -.85$, $p = .36$. I repeated the same analysis with attitudes towards refugees as dependent variable and likewise found neither a significant effect of condition, $F(1, 100) = .22$, $p = .64$, nor of time, $F(1, 100) = .63$, $p = .43$, nor an interaction of Time x Condition $F(1, 100) = 1.11$, $p = .29$. The SPSS outputs of the two ANOVAs is presented in Appendix B.



Graph 5: An overview of the means for each scale of both conditions.

4.4 Discussion

The analysis of the data revealed that the results were mainly inconsistent with the hypothesis. As provided by the results, there was no significant difference between the two groups pre- nor post-manipulation. Furthermore, there was no difference between the groups in the effect of the manipulation. In other words, participants who were in the control condition did not change their attitude towards neither climate change nor refugees after the manipulation, and neither did participants that were part of the experimental group. These findings are inconsistent with the hypothesis, and may suggest that the manipulation did not have a significant effect on attitude change. In other words, the findings suggest that information

about climate refugees did not have a greater effect in changing attitudes towards climate change or refugees, as compared to the information about the human body (i.e. the control).

One possible explanation may be that there was found a clear ceiling effect in the attitudes towards both climate change and refugees, in both condition groups, both prior and post the manipulation. There are two different ways of explaining this. The first is that the attitudes of the participants, and suggestively the entire population, towards climate change and refugees, are mainly positive. The second possible explanation is that participant's responses were biased. This would have the potential of happening if it is too obvious to the participants what the questions asked for (Ajzen & Fishbein, 2005). However, as mentioned in the introduction to this study, the current study included several control items to prevent such a biased response from occurring. In fact, control items were added in all the four attitude measures: refugee pre-manipulation; refugee post-manipulation; climate change pre-manipulation; and climate change post-manipulation. Therefore, it is rather unlikely that the results can be explained as biased. Hence, the most likely cause of this ceiling effect is that attitudes were generally positive. Moreover, we did not see any sign of increased positivity in attitudes post-manipulation in the experimental condition, suggesting that the manipulation may not have had any effect on the results.

There was found no significant difference between the two groups at the beginning of the experiment, prior to the manipulation. These findings were as hypothesised considering the groups were randomised. The findings suggest that the results were not due to a difference between groups, but rather the effect of the manipulation. In other words, it seemed as though manipulation did indeed not affect participants' attitudes.

The results showed high internal reliabilities within each of the four measures: climate pre-manipulation; climate post-manipulation; refugees pre-manipulation; and refugee post-manipulation. Therefore, a low internal reliability cannot explain the results. However, there is always a chance that the measures did not actually test what we meant to test. In other words, the measures may not be as good as expected at assessing attitudes towards climate change and refugees.

The results also showed that participants in large answered correctly to the experimental manipulation questions. This finding may suggest that participants already had the knowledge

before participating in the study, and that this is the reason why the manipulation did not alter attitudes. In other words, the assessment of attitudes pre-manipulation could potentially have been affected by this already existing knowledge, which would make the manipulation unable to affect the post-manipulation attitude measures. However, correlational analyses contradict this hypothesis. The findings of the correlational analyses suggest that participant knowledge did not significantly correlate with any of the attitude measures. In other words, participants that had positive attitudes towards climate change and refugees did not have the most knowledge about climate refugees. This is surprising and inconsistent with the hypothesis, considering well-known theories, such as the multicomponent model of attitudes, suggest that knowledge is one of the factors that contribute in constructing attitudes (see for instance Ajzen & Fishbein, 2005; Chiu, 2002; Eagly & Chaiken, 1993; Maio & Haddock, 2010).

According to Katz (1960), attitudes can contribute in making sense of the information that is acquired. It may therefore be that the already existing, generally positive attitudes somehow contribute in creating an understanding that does not change attitudes. This new knowledge may therefore rather be perceived as an addition to already existing knowledge or knowledge that confirms already existing attitudes, and may thereby explain the findings. Furthermore, the new information may not be enough to change the existing background factors and beliefs as suggested by the theories of reasoned action and planned behaviour (Ajzen & Fishbein, 2005), which ultimately therefore will result in the apparent unchanged attitudes. It may also be that information about a third phenomenon, such as climate refugees, cannot significantly change attitudes towards two other related phenomena, such as climate change and refugees. In other words, it may be that only directly corresponding information and knowledge will influence attitudes. This point is addressed in Study 2 where intentions about climate refugees are assessed post manipulation.

The research question for this first study was “How may information about climate refugees alter Norwegian attitudes towards climate change and refugees?”. As we have seen, information about climate refugees did not change or alter attitudes towards neither climate change nor towards refugees. Therefore, providing information about climate refugees in the form of ‘true or false’-questions cannot on its own be a mediator for attitudes towards climate change or refugees. However, it is important to note that cognition and knowledge are considered as important parts of attitude construction by several theorists (see Ajzen & Fishbein, 2005; Chiu, 2002; Eagly & Chaiken, 1993; Maio & Haddock, 2010). Therefore, it

may be that presenting information in another way could influence attitudes. This could and should be investigated by future studies.

5 Study 2

This second study of this master thesis will focus on the affective component of attitudes. As suggested by the previously mentioned attitude models, affect may be an important part of attitudes, beliefs and intentions (Ajzen & Fishbein, 2005; Breckler, 1984; Chiu, 2002; Eagly & Chaiken, 1993; Maio & Haddock, 2010). In this study, I wish to measure participants' intentions to act upon climate change and climate refugees. This is done because, as suggested by Ajzen and Fishbein (2005), intentions are a strong predictor for actual behaviour. By measuring peoples' intentions to act, we thereby indirectly measure their behaviours, or at least the likelihood for behaviours. Moreover, intentions are closely linked to attitudes, and participants' attitudes will therefore also be measured. Of present knowledge, no previous articles seem to have assessed how eliciting feelings about climate refugees may alter attitudes or intentions towards climate change or climate refugees. The current study therefore aims to examine this relationship between evoked emotions and climate change and climate refugee intentions. Knowledge about such attitudes and general comprehension of these issues may be necessary in creating interventions and awareness among the general population. Furthermore, it gives a comprehension of how affective components may be used to alter attitudes and change the actions of individuals.

More specifically, this study will examine whether one can alter participants' intentions to act upon climate change and climate refugees by evoking participants' emotions. This study will aim to evoke emotions in participants by presenting them with a sound clip where a female climate refugee tells her story. The research question of this part of the master thesis will therefore be: "How may eliciting emotions related to climate refugees contribute in altering participants attitudes and intention to act upon climate change and climate refugees?".

The main emotion that is predicted to be evoked and that therefore will be measured, is a feeling of kama muta. Kama muta is Sanskrit for being *moved by love* (Fiske, Shubert & Seibt, 2017). The term is used to describe a heart-warming or tear-jerking feeling, a feeling of being moved or emotionally overwhelmed, and more specifically a feeling of being "one with nature or the cosmos" (Fiske et al., 2017, p. 79). The term *being moved* may be confusing as it can refer to different feelings for different people, including a feeling of sadness (Fiske et al., 2017). A measure of kama muta is therefore used in this report as it can be considered a more specified term that is less open for interpretation. While kama muta is the central emotion that

will be measured in this study, it will be interesting to examine the effect of other emotions as well. Therefore, the measure of emotions also includes feelings of anger, fear and sadness. Including different emotional measures like this allows us to examine which of these emotions is the greatest predictor of intentions.

5.1 Hypothesis

The main hypothesis of this current study is that presenting participants with a sound clip that evokes emotions will lead to greater intentions to act upon climate change and climate refugees. This makes the hypothesis divided into three parts.

Firstly, it is expected that those participants that are presented with the experimental sound clip, compared to participants presented with a control sound clip, will report a stronger feeling of kama muta. Secondly, it is expected that participants that report a stronger feeling of kama muta will also report greater intentions to act upon climate change and climate refugees. It is expected that a feeling of kama muta is the strongest predictor for intentions, compared to anger, fear and sadness. However, it is also predicted that those feelings combined is a stronger predictor than kama muta alone.

Lastly, as a combination of these, participants in the experimental group are expected to report greater intentions to act post-stimulus, compared to those participants in the control group. In other words, participants who are presented with the experimental stimulus are expected to report a greater feeling of kama muta, and are in turn hypothesised to have greater intentions to act.

5.2 Methods

5.2.1 Participants

One hundred and forty-four people volunteered to participate in this study. A total of 66 responses were excluded from the analysis due to participants completing < 70% of the study, not listening to the full sound clip, and for wishing to participate for educational purposes only (the pre-registration of the two studies had somewhat different exclusion criteria, see Appendix F and Appendix G for overview). This left 78 responses to be included in the analysis. Participants were recruited through the SONA student pool, Facebook and e-mails. For ethical reasons, people had to be over 18 years of age to participate in the study, and the

participants were aged 19 to 48 years, with a median age of 21. The participants were 26% male and 74% female.

5.2.2 Apparatus

Also in this study, participants were required to have access to a computer, tablet or smart phone with internet connection. This questionnaire was also created and administered through qualtrics.com.

5.2.3 Materials

The study consisted of four different parts: (a) attitudes pre-stimulus, (b) stimulus, (c) measure of kama muta, and (d) intentions post-stimulus (see Appendix C for an overview of all questions in each part and the order of the different parts).

Consistently with Study 1, the pre-stimulus attitude measures examined attitudes towards refugees and intentions. These attitude questions were from the SSB (2016) study and a previous study on climate attitudes by Christensen and Knezek (2015). Also in this experiment, participants were to rate the degree to which they agreed or disagreed to the statements using sliders, rating from "Strongly disagree" (0) to "strongly agree" (100). These statements were also drawn from previous research. An example of a statement of climate attitude pre-stimulus was "I believe there is evidence for global climate change" (Christensen & Knezek, 2015, p.788), and an example for the refugee measure is "Most immigrants abuse the system of social benefits" (SSB, 2016, p.54).

The stimulus was a sound clip presented through youtube.com. There were two different sound clips: one for the control condition, and one for the experimental condition. The sound clip for the experimental condition was that of a Philippian woman telling about her experience with the typhoon Haiyan in 2013 (Manley, Rodriguez, &McAuliffe, 2017). This was the experimental clip as it had the potential of evoking emotions, including a feeling of kama muta. The clip that was presented in the control condition was an unrelated clip. This was a clip from a TED-talk, where a man talked about trying something new for 30 days (Cutts, 2013). This clip was chosen as it was not considered to have the potential of evoking any feeling of kama muta. The experimental clip was 5 mins, 5 seconds long, whereas the clip

for the control condition was 3 mins 10 seconds long. There is a slight difference in the length of the stimuli, but it should be close enough in length to be suitable for this experiment.

As the study wishes to examine whether evoking emotions may alter attitudes, a measure of emotions was included. This measure examined the feeling of kama muta, anger, fear and sadness, and was adapted from previous research on kama muta and global warming (Zickfeld et al., in press). The intentions post-stimulus was divided into two parts: intentions to act upon climate change and intentions to help climate refugees. There were seven statements of climate refugee intentions and ten statements of climate change intentions. The climate change intentions scale was adapted from an earlier study in a kama muta project on the influence of kama muta on climate change intentions, and was a shortened version of that scale. The climate refugee intentions scale was new for this study.

5.2.4 Design

The current experiment has a design with one factor varying between subjects: the condition that participants were randomly assigned to (experimental vs. control). The control variables were climate attitudes and attitudes towards climate refugees, and the dependent variables were climate intentions and climate refugee intentions.

5.2.5 Procedure

Participants could choose to complete the study in Norwegian or English (only the English version is presented in Appendix C). In the very beginning of the study, participants were presented with an informed consent form. Participants were asked to read the form and agreeing to the terms if they wanted to continue participating. After agreeing to the terms, participants were asked whether they only wanted to participate for educational purposes, and thereby whether they would allow analysis of their data. This question was included as it is mandatory for all studies that collect data through the SONA student pool. Next, there was a practice trial of the response method used, namely sliders (see example of this response method from the study in Appendix E). Participants were asked to drag a bar all the way to the right as to indicate a strong agreement. This was done to familiarise participants with the somewhat unfamiliar response method used in some of the questions.

After the introduction of the study, participants were presented with a series of questions about their attitudes towards refugees and climate change. The questions were presented as statements to which participants responded how strongly they agreed or disagreed. Participants responded using sliders, which was the method that they rehearsed as part of the introduction. After answering these 14 statements, participants were presented with a sound clip.

Participants were presented with one of the two mentioned sound clips dependent on the condition they had been randomly assigned to. When having finished listening to the sound clip, participants were presented with a measure of emotions. In this measure, participants were to respond whether they had experienced a series of feelings and physical changes while listening to the sound clip. The scale consisted of six items that assessed feeling of kama muta, three items that measured anger, three items that examined fear, and lastly three items that measured sadness. Participants were also asked to respond to what they heard about in the sound clip, where they rated four statements on a scale from one to six. An example of the statements was "In this clip I heard about an extraordinary feeling of welcoming or being welcomed". All the questions in this part of the study were responded to using a seven-point scale, ranging from 'not at all' (0) to 'very much' (6).

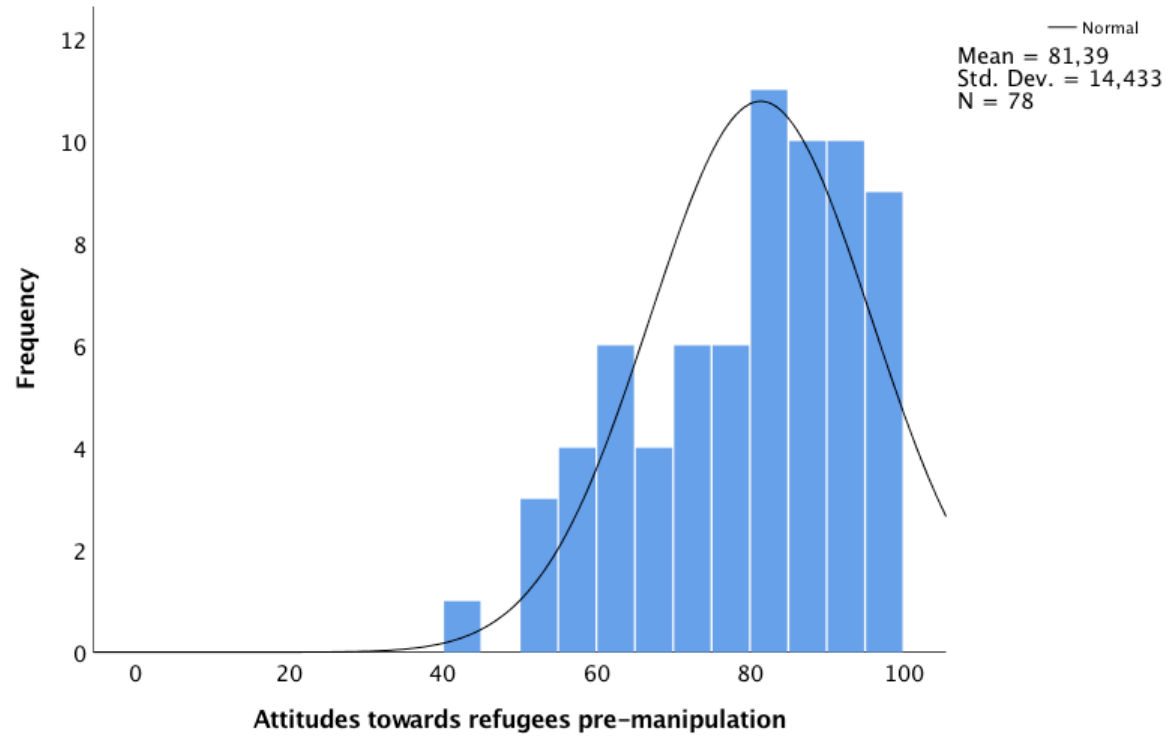
After having responded to the kama muta measure, participants were presented with statements of intentions. Participants were to respond how likely or unlikely they were to do a number of things, as a consequence of hearing the story in the sound clip. Participants responded using sliders, rating the intention statements from "very unlikely" (0) to "very likely" (100). These questions of intentions were followed by a question of how easy the participants thought it should be for refugees to get residence permits in Norway. Thereafter, participants were again presented with several statements to which they were to respond how much they agreed or disagreed. These statements were about climate refugees.

As the last part of the study, participants were asked a number of demographic questions, including their gender, age and nationality. Participants were also asked how many children they have, whether they have any pets, and what their relationship status was (see Appendix C). Furthermore, there was a last open question where participants could leave comments about the study. Lastly, there was a debriefing in which participants could read about the purpose of the study, as well as being presented with suggested further reading.

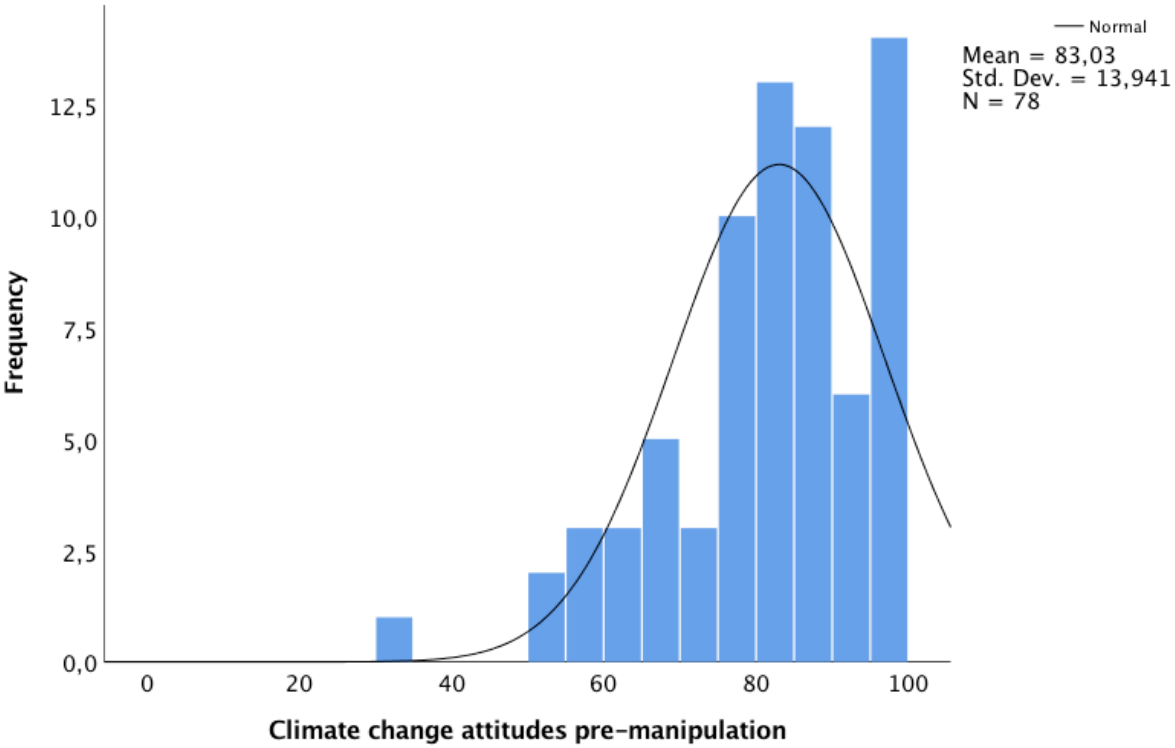
5.3 Results

Firstly, responses of participants that had not finished more than 70% of the study and that of those who only wanted to participate for educational purposes were excluded from the analysis. This resulted in 78 responses being included in this analysis. The first part of the analysis after excluding participants was to reverse variables. Within both attitude measures pre-manipulation, a few statements were reversed (see Appendix C for an overview of items). As in the first study, a higher score on the attitude measures reflected more positive attitudes.

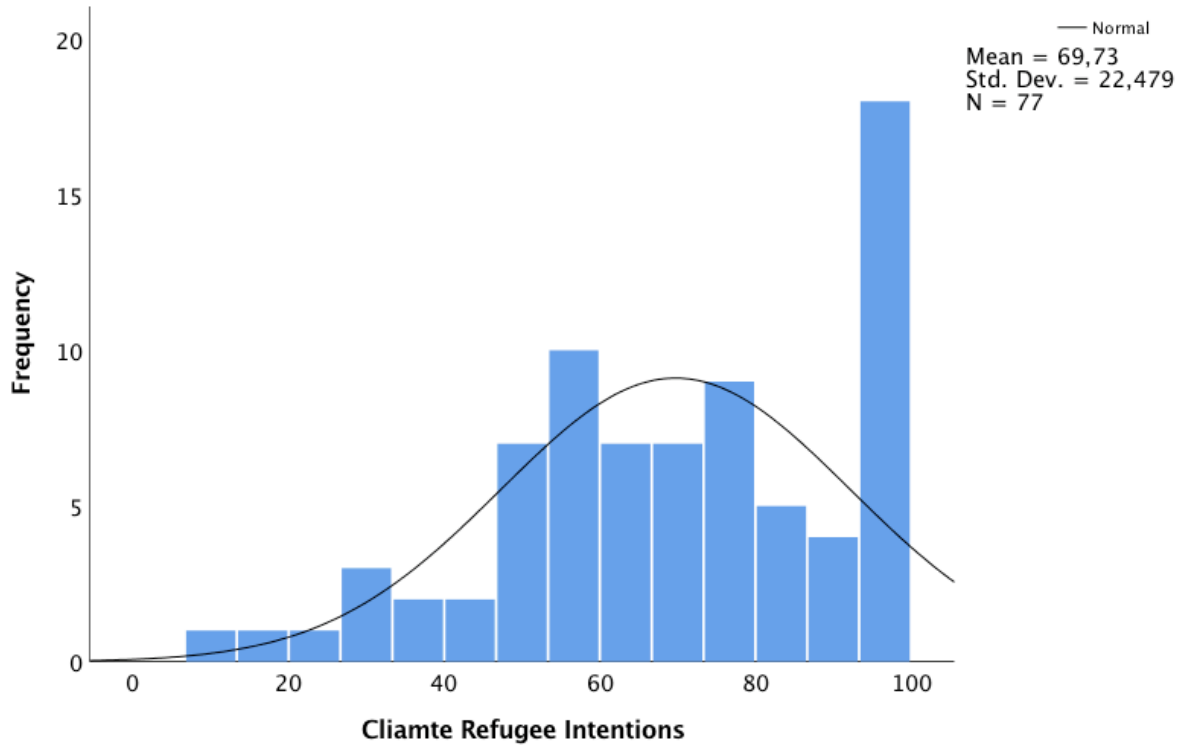
The different items of the study were then divided into eight scales. The Cronbach's alpha of each item within one scale was calculated to determine internal reliability. For the attitudes towards refugees pre-manipulation, a= .654, and a= .792 for the attitudes towards climate change pre-manipulation. Moreover, a= .884 for climate intentions, and a= .897 for climate refugee intentions. Lastly, the reliability of the kama muta measure showed that a= .870. The reliability of all these variables were thereby satisfying. The measure of emotions evoked by the sound clip also included anger, sadness and fear. The Cronbach's alpha showed that all of these scales had satisfying internal reliabilities: for anger a=. 817, for the fear variable a= .922, and for sadness a= .865. As all of these measures showed sufficient internal reliabilities, eight new variables were computed by calculating the mean of the different scores. These new variables would thereby also have scores that ranged from 0 (very negative attitude) to 100 (very positive attitude). The eight new variables were: attitudes towards climate change, attitudes towards refugees, feeling of kama muta, feeling of anger, feeling of fear, feeling of sadness, climate change intentions, and climate refugee intentions. The mean, standard deviation (SD) and distribution of the pre- and post- manipulation measures are presented in graphs 6-9.



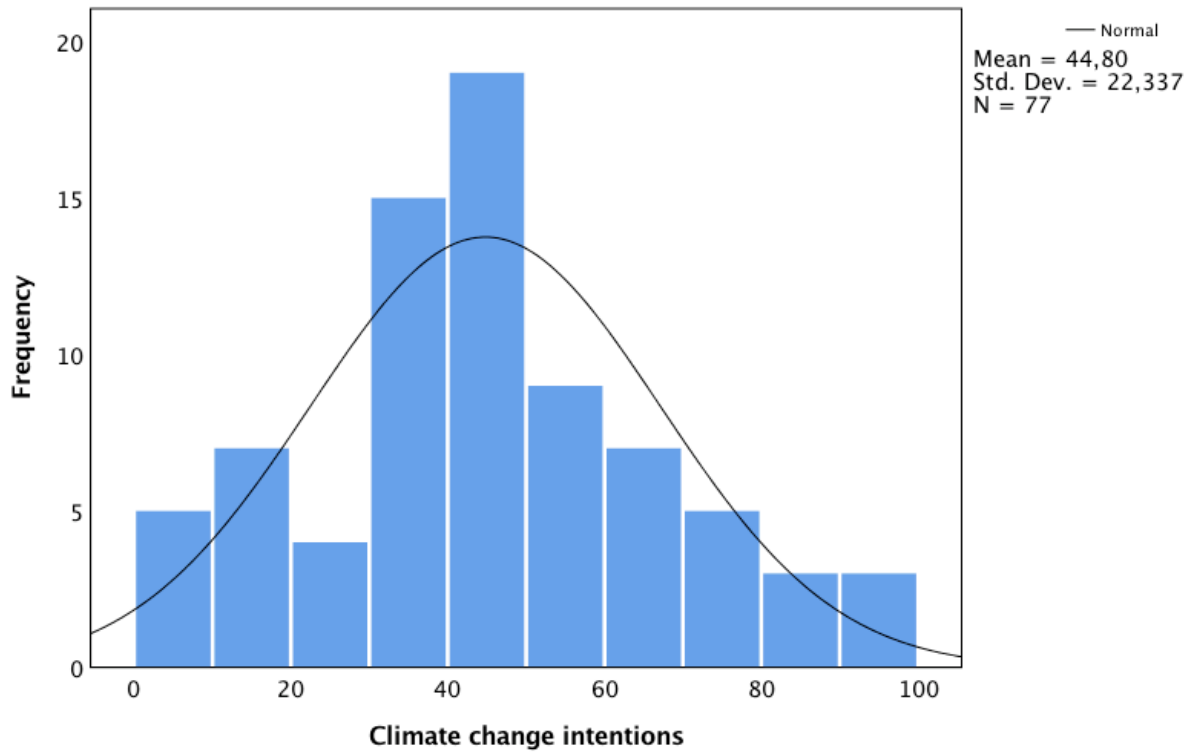
Graph 6: Distribution, mean and SD of scores for attitudes towards refugees pre-manipulation



Graph 7: Distribution, mean and SD of scores for attitudes towards climate change pre-manipulation



Graph 8: Distribution, mean and SD of scores for climate refugee intentions post-manipulation



Graph 9: Distribution, mean and SD of scores for climate change intentions post-manipulation.

T-tests were conducted to compare the attitudes pre-manipulation between the two groups. The mean, standard deviation and distribution of these variables is presented in graphs 6 and 7. It is apparent from these graphs that there may be a ceiling effect in attitudes pre-manipulation, similarly to that of Study 1. A t-test comparing attitudes towards refugees pre-manipulation showed no significant difference between the groups, $t(75)= .574$, $p= .568$. Also the comparison of the groups attitudes towards climate change pre-manipulation showed no significant difference, $t(76) = .209$, $p= .835$. These findings are as expected considering participants were randomly assigned to one of the two groups.

Thereafter, I compared the means of the two groups feeling of kama muta. As kama muta was measured on a 7-point scale ranging between 0 (not at all) and 6 (very much), the means are also within this range. The kama muta mean (SD) for the control group was 2.43 (1.03), and it was 3.63 (1.53) for the experimental group. An independent samples t-test showed a significant difference between the two groups, $t(76) = -4.11$, $p < .001$. When looking at the means of the two groups it is evident that those participants in the experimental group experienced a greater feeling of kama muta than those in the control group.

Moreover, I compared the means of the two groups feelings of anger, fear and sadness. These measures had the same 7-point scale as the kama muta measure. The mean (SD) for anger was 1.22 (.70) for the control condition, and 2.16 (1.05) for the experimental condition. An independent samples t-test showed a significant difference between the two groups in feeling of anger, $t(76) = -4.740$, $p < .001$. The means (SD) for the two groups feeling of fear was 1.22 (.53) for the control condition and 3.20 (1.65) for the experimental condition. An independent samples t-test showed that there was a significant difference between the two groups in feeling of fear, $t(76) = -7.611$, $p < .001$. Lastly, the means (SD) for the groups feeling of sadness was 1.42 (.71) for the control group and 3.67 (1.49) for the experimental group. The independent samples t-test showed a significant difference between the groups in the feeling of sadness, $t(76) = -8.908$, $p < .001$. Considering the means of these measures, these findings suggest that participants who were presented with the experimental sound clip reported feeling more kama muta, anger, fear and sadness than those in the control condition.

Then, comparisons between the groups intentions post-manipulation were conducted. The intentions were divided into two types: intentions related to climate change and intentions related to climate refugees (means and standard deviation are presented in graph 8 and 9). For

climate change intentions, the mean (SD) for the experimental group was 48.50 (23.80) and it was 42.16 (21.11) for the control condition. An independent samples t-test showed that there was no significant difference between the groups in climate change intentions, $t(75) = -1.232$, $p = .222$. For climate refugee intentions, the mean (SD) was 70.88 (22.28) for the experimental condition and 68.90 (22.83) for the control condition. An independent samples t-test showed that there was no significant difference between the two groups in climate refugee intentions, $t(75) = -.379$, $p = .706$. This suggests that the sound clip did not have a significant effect on the outcomes of peoples' intentions.

Next, I performed general linear models to examine what effect the different feelings (kama muta, anger, fear and sadness) had on the intentions. Firstly, a simple linear regression on the effect of kama muta on climate intentions showed that $F(1, 75) = 22.378$, $p < .001$, with a R^2 of .23. Another simple linear regression was used to examine the effect of anger on climate intentions, and showed that $F(1, 75) = 16.393$, $p < .001$, with a R^2 of .179. The next simple linear regression examined the effect of fear on climate intentions, $F(1, 75) = 3.365$, $p = .071$, with an R^2 of .043. The last effect on climate intentions that was tested was the effect of sadness, which showed that $F(1, 75) = 10.226$, $p = .002$, with a R^2 of .120. These findings suggest that the feeling of kama muta, anger and sadness had a significant effect on participants' intentions to act upon climate change. Furthermore, the strongest predictor of climate intentions was the feeling of kama muta, which accounted for 23% of the climate intentions. Including all the variables (kama muta, anger, fear and sadness) shows that $F(4, 72) = 7.929$, $p < .001$, with a $R^2 = .306$. This suggests that together these feelings predict about 31% of people's intentions. The findings of this analysis show that only two of the feelings remain significant in this joint analysis: kama muta, $\beta = .46$, $t(72) = 3.53$, $p = .001$ and anger, $\beta = .31$, $t(72) = 2.09$, $p = .04$. The non-significant effect of fear was $\beta = -.22$, and that of sadness was $\beta = .00$.

Next, I performed a multiple regression analysis predicting climate intentions by the four emotions, condition, and prior attitudes towards climate change. These variables jointly explained 52% of the variance in climate intentions. However, only two individual predictors were significant: prior climate change attitudes, $\beta = .48$, $t(78) = 5.44$, $p < .001$, and kama muta, $\beta = .35$, $t(70) = 3.06$, $p = .003$. The effect of anger was $\beta = .17$, that of fear $\beta = -.11$ and that of sadness $\beta = .04$, all non-significant. Thus, as predicted, kama muta had a larger influence on climate intentions than the other emotions. In addition, prior climate attitudes

predicted climate intentions. This was expected based on the theories of reasoned action and planned behaviour (Ajzen & Fishbein, 2005) which assumes that attitudes predict intentions, and on the fact that Norwegians differ in their concern about climate change.

Given that I found a significant effect of condition on kama muta, and a significant effect of kama muta on climate intentions when controlling for the effect of condition, it can be concluded that I obtained an indirect effect of condition on climate intentions via kama muta (Kenny, 2018). In other words, kama muta mediated the effect of condition on climate intentions (even though the direct effect was not significant), when controlling for prior attitudes towards climate change. A PROCESS 3.0 model (Hayes, 2017) confirmed a significant indirect effect, this time not controlling for prior attitudes or other emotions, B = 8.97 [95% CI: 3.98; 16.06].

The same procedure was conducted for the climate refugee intentions. Firstly, a simple linear regression assessing the effect of kama muta on climate refugee intentions showed that $F(1, 75) = 6.333$, $p = .014$, with a R^2 of .078. Secondly, a simple linear regression examining the effect of anger on climate refugee intentions showed that $F(1, 75) = 8.167$, $p = .006$, with $R^2 = .098$. Thirdly, the effect of fear on climate refugee intentions was calculated, showing a non-significant effect, $F(1, 75) = 1.697$, $p = .197$, $R^2 = .022$. Lastly, a simple linear regression examining the effect of sadness on climate refugee intentions showed that $F(1, 75) = 3.241$, $p = .076$, with $R^2 = .041$. As apparent form these results, only the feeling of kama muta and anger had a significant effect on climate refugee intentions, with anger being the strongest predictor, explaining 10% of the intentions. Including all the variables (i.e. kama muta, anger, fear and sadness) showed a significant prediction of climate refugee intentions, where $F(4, 72) = 2.784$, $p = .033$ with an R^2 of .134. This suggest that together these feelings predict 13% of participants' climate refugee intentions. In this joint analysis, only anger remained a significant predictor, $\beta = .34$, $t(72) = 2.07$, $p = .042$. The effect of kama muta was $\beta = .24$, that of fear was $\beta = -.02$, and that of sadness was $\beta = -.19$, all of which were non-significant.

A multiple regression analysis predicting climate refugee intentions by prior refugee attitudes, condition, and the four emotions explained 39% of the variance, and only the prior attitude towards refugees was a significant predictor, $\beta = .51$, $t(70) = 5.35$, $p < .001$. The effect of kama muta was $\beta = .22$, that of anger was $\beta = .26$, that of fear $\beta = .13$ and that of sadness $\beta = -.21$, all of which were non-significant. However, a hierarchical multiple regression procedure

showed that including the four emotions increased the explained variance from 30 % to 39 %, i.e. an increase of 9 %. Thus, it can be concluded that kama muta and anger individually influenced climate refugee intentions but that their effects are not independent from each other. Thus, when considering them concurrently, and together with prior refugee attitudes, they do not predict significantly. Nevertheless, the four emotions together predicted 9 % in the variance of climate refugee intentions, when controlling for prior refugee attitudes. The SPSS outputs of all these joint analyses is presented in Appendix D.

5.4 Discussion

The results of this study show varied consistency with the hypotheses. Firstly, the results show that there was no significant difference between groups in attitudes pre-manipulation. These findings are as suggested, as participants were randomly assigned to the two groups. Also in this study, concern about climate change and refugee-friendly attitudes were already very high pre-manipulation (see graphs 6 and 7).

It was predicted prior to the study that those participants that were presented with the experimental sound clip with the story of a climate refugee, would report greater emotions being evoked. To test this hypothesis, independent samples t-tests were carried out. The findings confirmed the hypothesis, where participants in the experimental group reported a significantly greater feeling of kama muta, anger, fear and sadness than those in the control group. These findings thereby suggest that the experimental condition had the intended effect on emotions.

As the experimental sound clip had a significant effect on feelings, there is reason to believe that participants in the experimental group would also report having greater intentions, as hypothesised. However, this was not found. The results of the current study showed a non-significant difference between the groups in intentions to act upon both climate change and climate refugees. In other words, participants that had been presented with the emotional sound clip did not have greater intentions to act than those in the control condition, even though they did report being more emotionally affected. This finding may be explained by the ceiling effect that was apparent in both groups pre-manipulation. Such a ceiling effect may suggest that in general all participants already had great intentions to act upon climate change and climate refugees. Therefore, it would be difficult to provide greater intentions by evoking

emotions. However, the means show that there is a non-significant tendency of greater intentions in the experimental group as compared to the control group. The sample size achieved in the current study (78) was also considerably smaller than the sample size aimed for (255) based on power calculations and as pre-registered. Thus, the study did not achieve the power aimed for to detect a small difference between conditions. Therefore, achieving the pre-registered sample size may be sufficient to find the predicted effect. In addition, repeating the study in a sample with less climate change concern and less willingness to accept refugees may also help detect the effect of the emotional involvement with the climate refugee density.

Despite there not being found a significant difference between the groups in intentions, the results showed that emotions did indeed influence intentions. General linear models showed that kama muta, anger and sadness had significant effects on climate change intentions. Here, kama muta was the strongest predictor for climate change intentions, predicting 23% of the climate change intentions. Anger accounted for approximately 18% of the climate change intentions, and sadness explained 12%. A feeling of fear did not have a significant effect on climate change intentions, only accounting for 7%. Together, the four types of emotions evoked approximately 31% of the climate change intentions. Moreover, the analysis showed a significant indirect effect of condition on climate intentions via kama muta. However, when looking at climate refugee intentions, the emotions had a slightly smaller effect. Here, only kama muta and anger had significant effects, with kama muta predicting approximately 8% and anger approximately 10% of the climate refugee intentions. These findings are partly consistent with the hypothesis.

It was hypothesised that kama muta would be the strongest predictor of intentions. This is true for the climate change intentions, but not for the climate refugee intentions where anger is the strongest predictor. It is slightly surprising that the different intentions are differently affected by emotions. However, it is important to note that the difference between the prediction by anger and that by kama muta was small in both cases, such that the main finding is that kama muta and anger jointly predict intentions to act. It may seem as though the feeling of kama muta can predict intentions to act upon climate change, but such a feeling does not as strongly predict climate refugee indentions. As kama muta reflects a person's feeling of being one with others, one would predict that it would be stronger for climate refugee intentions. However, it appears peoples' anger, maybe towards the unfairness of who climate affect and how, is stronger in predicting such climate refugee intentions. Nevertheless, the combined feelings

were found to be significant predictors of both climate change intentions (31%) and climate refugee intentions (13%). Thus, the feelings predict climate change intentions in a greater sense than climate refugee intentions. It may be discussed whether the intentions to act upon climate change is ultimately more important for also helping climate refugees than acting directly upon climate refugees. Acting upon climate change may contribute to several other factors as well, and may therefore be perceived as more important to participants. Moreover, it may be that people find it easier to act upon climate change than climate refugees, and that they therefore choose to focus on acting upon climate change (and thereby indirectly also climate refugees). This may explain why emotions overall more strongly predict climate change intentions than climate refugee intentions.

The research question for this study was "How may eliciting emotions related to climate refugees contribute in altering participants attitudes and intentions to act upon climate change and climate refugees?". We have seen that listening to a sound clip of the story of a climate refugee did evoke emotions, but that this did not significantly impact peoples' intentions to act. However, evoking certain feelings, and particularly kama muta and anger, can predict participants' intentions to act. Moreover, a slight, but non-significant tendency of greater intentions to act when presented with the emotional climate refugee sound clip was identified. Therefore, while the effect was not found to be significant in this present study, future studies may wish to further examine this relation.

6 General discussion and conclusion

The current study has investigated how the cognitive and the affective components of attitudes may be used to alter attitudes and intentions towards climate change, refugees and climate refugees. More specifically, the study has investigated how information and evoked emotions related to climate refugees can change attitudes and intentions towards climate change, refugees and climate refugees. The thesis has aimed to respond to the research question "How may information and feelings about climate refugees contribute in altering intentions and attitudes towards climate change and refugees?".

As we have seen in this study, neither information nor emotions alone had the ability to significantly change participants' attitudes or intentions towards climate change, refugees or climate refugees. This is inconsistent with previous findings that have found that emotions and cognition can indeed be predictors of attitudes (Eagly et al., 1994; Pooley & O´Connor, 2000). The findings of this current study may suggest that the cognitive and the affective components of attitudes alone cannot alter attitudes. However, theorists agree that these two components are important attitude constructs and may therefore also be important in changing attitudes and attitude behaviour (Ajzen & Fishbein, 2005; Canuto et al., 2014; Chiu, 2002; Eagly & Chaiken, 1993; Maio & Haddock, 2010). One potential way of providing significant results using these methods would be to have larger sample sizes, reaching the aimed sample sizes. This current master project, however, did not allow for the time to collect more data. However, the current findings do provide some indication of what might be found with larger sample sizes. For instance, there was a tendency of more positive intentions for those participants that have been presented with the sound clip of a climate refugee's story. Moreover, an indirect effect of condition on climate intentions cia kama muta was identified. Therefore, it may be that evoking such emotions can indeed alter intentions to act for a larger population. Such a tendency was not apparent in attitudes after being presented with information about climate refugees. This may suggest that affect is a greater predictor in altering attitude behaviour than cognition. However, it may also be that a measure of intentions (as opposed to attitudes) post-information would provide the same tendency as seen post-emotion. It may be interesting for future studies to further investigate whether one of the two components are a greater mediator for attitudes and attitude behaviour. Furthermore, future studies may wish to investigate whether these two components combined have a greater potential of changing attitudes. Moreover, it may be interesting to examine whether

this effect is apparent in both attitudes-measures and intention-measures, or only one of the two. If there is indeed a difference, one may discuss the extent to which attitudes actually do predict intentions.

One important factor to note from these two studies is the apparent ceiling effect in attitudes towards both climate change and refugees. It is important to note that this effect was apparent for both populations, where one population consisted of only students and the other population was more diverse. There are a few possible explanations for these findings. Firstly, it may be that participants had generally positive attitudes towards climate change and refugees. Secondly, Katz (1960) suggests that participants use attitudes to receive rewards, and therefore choose to hold attitudes that provide such reward. If participants believe that positive attitudes and attitude behaviour may provide rewards, this could therefore explain the results. In either case, it is not surprising that there was not a significant effect of the manipulations when the attitudes were already so positive.

Even though attitudes seem to be mainly positive, it seems apparent that current actions are not sufficient (APA, 2009). The findings of the current study have therefore lead to the question of why people do not do more to act upon climate change when there is such a ceiling effect in their attitudes. One possible explanation is that people do not know what to do to contribute. As I am concluding this thesis, there is a large focus on reducing plastic waste in the oceans. This topic has been highly emphasized in different media in Norway, where the action of picking plastics and other waste from beaches has been emphasized as a good contributor. This action of picking up garbage is simple, to the point, and achievable for most people. Therefore, participants' control beliefs (see the theories of reasoned action and planned behaviour, Ajzen & Fishbein, 2005) suggest that they are highly likely to manage the task. This may explain why this action has had a large response, with people picking up large amounts of garbage in the nature. Therefore, providing clear indications of how to act and exactly what to do may be helpful in altering peoples' attitudes, intentions and actual actions. Moreover, I still believe that providing information about the results of human pollution is important. Information needs to be accessible for the general population so that they can construct sensible and well-informed choices based on their own well-informed attitudes. This will potentially contribute in eliminating the difference in attitudes between scientists and the general population (Austgulen, 2012; Christensen, 2008, as cited in Austgulen & Stø, 2013). It is particularly important that there is a continued focus on climate change and how actions

may be changed as it is reported that climate change is mainly due to human activity (APA, 2009; IPCC, 2007) and that this will continue to happen (Kvåle, 2014; WMO, 2016). Also, a continued focus on climate refugees may be important, as it is not unlikely that some climate refugees will have to cross country borders in the future. Therefore, even though the current study did not find a significant effect of neither cognition nor affect on climate change and climate refugee attitudes and intentiones, continued focus on these topics in psychology research may be important, as suggested also by APA (2009). Hence, the findings of the current study may be built upon to create a clearer understanding of how attitudes and intentions related to climate change, refugees and climate refugees may be altered. The results of future studies will hopefully be able to then create a clearer understanding, which in turn can be used to create interventions or educational situations that can lead to a change in a population's attitude behaviour.

6.1 Conclusion

The current study did not find any significant effect of cognitive or affective manipulations on attitudes and intentions. It did, however, show that feeling of kama muta and anger significantly predicted intentions to act upon climate change and climate refugees. Therefore, this current study has contributed in creating a somewhat clearer understanding of how attitudes towards climate change and climate refugees may be altered. Nevertheless, a continued focus and future research on these topics may be important in creating an understanding of how the interaction between climate change and refugees is perceived and understood. A greater understanding can contribute in finding the best actions to reduce future climate change (APA, 2009). Furthermore, a more in-depth knowledge of attitudes towards climate change and how they can be altered may contribute to reduce this century's biggest threat towards global health (Costello et al., 2009).

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Appendix A

An overview of the questionnaire of Study 1

Attitudes pre-manipulation

Statements marked with an X in the reversed column are reversed in score.

Drag the bars to indicate the degree to which you agree or disagree with the statements below (Strongly disagree – strongly agree)	Reversed
"Most immigrants make an important contribution to Norwegian working life" (SSB, 2016, p. 54)	
"Most immigrants abuse the system of social benefits" (SSB, 2016, p. 54)	X
"Most immigrants are a source to insecurity in the society" (SSB, 2016, p. 54)	X
"All immigrants should have the same opportunities to get a job as Norwegians" (SSB, 2016, p.54)	

Drag the bars to indicate the degree to which you agree or disagree with the statements below (Strongly disagree – strongly agree)	Reversed
"I am concerned about terrorism" (*filler*)	X
"I am concerned about the economic burden of refugees" (*filler*)	X
"Humans have the rights to decide upon the rest of the nature" (Austgulen, 2012, p. 17) (*filler*)	X
"The balance of nature is very fragile and easily disturbed" (Austgulen, 2012, p. 17) (*filler*)	

Drag the bars to indicate the degree to which you agree or disagree with the statements below (Strongly disagree – strongly agree)	
"Climate change is mainly created by humans" (Austgulen, 2012, p. 14)	
"Climate change is simply natural variations in the temperatures of earth" (Austgulen, 2012, p.14)	X
"We do not know enough at present to say that climate change is a problem" (Austgulen, 2012, p. 14)	X
"I am sure that climate change occurs" (Austgulen, 2012, p. 14)	
"There is too much focus on climate change"	X
"It is too early to say whether climate change occurs" (Austgulen, 2012, p. 14)	X

"Are you in contact with refugees that live in Norway, for instance at work, in the neighborhood, among friends, family, etc.?" (SSB, 2016, p. 55) YES / NO
"If yes: in what contexts are you in contact with refugees that live in Norway?" (SSB, 2016, p.55) "At work" (SSB, 2016, p.55) "Among friends" (SSB, 2016, p.55) "In the neighborhood" (SSB, 2016, p.55) "Among relatives" (SSB, 2016, p.55) "Other" (SSB, 2016, p.55) "I am not in contact with any refugees."

True or false – climate refugees

Questions and the presented information included whether the correct answer was true or false.

Sources for the facts are presented in brackets.

"The poor are most affected by climate change." "True. Poor people do not have the same opportunity to adapt to climate change as rich people do. These poor people are more dependent on food and water from their local areas, and natural disasters that destroy the opportunities to grow food therefore affects the poor people the hardest." (FN-sambandet, 2017; IPCC, 2014).
"There is an increase in the number of people who have to flee from their homes because of climate change." "True. The number of people who have to flee from their homes as a result of climate change is increasing. It is expected that by 2050, about 200 million people will be displaced as a result of climate change". (Lewis, 2015; Myers, 2005, as cited in Boano, Zetter & Morris, 2008; Singh, 2015)
"Climate change can lead to drought and result in famines." "True. Climate change can often lead to drought and famines. For example, 258 000 people died in Somalia in 2010-2012 because of drought. Furthermore, because of drought, 13 million people in East-Africa were in the need of humanitarian assistance in that same

period” (FAO, WFP, IFAD, 2015; WMO, 2016).

“It is expected a decrease in the number of people who suffer from severe hunger in the future”. “False. It was reported in 2012 that about 1 billion people suffer from severe hunger every year. This is expected to increase with the increase in the world’s population” (FAO, WFP, IFAD, 2012).
“Climate change has been considered the biggest threat towards global health of this century”. “True. Climate change has been considered the biggest threat towards global heath of this century. This is because it can lead to uninhabitable areas, severe hunger, extreme heat and extreme cold” (Costello et al., 2009; Kvåle, 2014).
“More than 25 million people are being displaced each year as a result of natural disasters”. “True. Since 2008, an average of 26.4 million people has been displaced every year as a result of natural disasters”. (FN-sambandet, 2017; IDCM, 2015).
“Climate refugees has the same rights as other refugees”. “False. Climate refugees are as of today not considered refugees by the UN’s refugee convention. Because of this, people who flee from their homes because of climate change, unlike other refugees, are not entitled to international protection. Therefore, climate refugees have to flee within their own countries. This causes increased population density in large cities, increased poverty, and often also increased conflict” (FN-sambandet, 2017; Kvåle, 2014; UNHCR, 1951).

True or false control

Questions and facts are from Quipo Quiz “A quiz on the Human Body” (n.d.), retrieved from http://quipoquiz.com/quiz/the-human-body/. All facts were checked before being included in the questionnaire.

Questions and the presented information included whether the correct answer was true or false.

“An adult has fewer bones in their body than babies”. (“A Quiz on the human body”, n.d.) “True. A baby starts off with about 350 bones, but because some bones fuse together during growth, he will end up with only 206 bones as an adult” (“A Quiz on the human body”, n.d.)

“The brain consumes 20% of the calories consumed by the body.” (“A Quiz on the human body”, n.d.) “True. Despite its relatively small size (2% of the body), the brain accounts for about 20% of the calories consumed by the body.” (“A Quiz on the human body”, n.d.)
“In one day, blood travels a total of 19.000 km.” (“A Quiz on the human body”, n.d.) “True. In one day, blood travels a total of 19.000 km, which is more than the diameter of Earth.” (“A Quiz on the human body”, n.d.)
“The human body is about 24% water.” (“A Quiz on the human body”, n.d.) “False. The human body is about 60% water, which is an essential component of every cell.” (“A Quiz on the human body”, n.d.)
“Blood cells are produced by the liver.” (“A Quiz on the human body”, n.d.) “False. The bone marrow produces new blood cells.” (“A Quiz on the human body”, n.d.)
“Memory is located in the part of the brain called the “cerebellum”.” (“A Quiz on the human body”, n.d.) “False. Memory and the cognitive and motor functions are located in the cerebral cortex, not the cerebellum”. (“A Quiz on the human body”, n.d.)
“Blood represents about 2% of the body weight”. (“A Quiz on the human body”, n.d.) “False. Blood represents about 7 to 8% of the body weight”. (“A Quiz on the human body”, n.d.)

Attitudes post-manipulation

“Compared to today, should it be easier for refugees and asylum seekers to get residence permits in Norway, should it be more difficult, or should it remain the same as today?” (SSB, 2016, p.55).

Easier	As today	More difficult

Drag the bars to indicate the degree to which you agree or disagree with the statements below (Strongly disagree – strongly agree)	
“Immigrants in Norway should strive to become as similar to Norwegians as possible”. (SSB, 2016, p.54)	X
“I would find it uncomfortable if I got an immigrant as a new neighbor”. (SSB, 2016, p. 23)	X

"All immigrants in Norway should have the same opportunities to work as Norwegians". (SSB, 2016, p.54)	
"Most immigrants enrich the cultural life in Norway". (SSB, 2016, p.54)	

Drag the bars to indicate the degree to which you agree or disagree with the statements below (Strongly disagree – strongly agree)	
"I think all refugees should be given Norwegian language training" (*filler*)	
"We are getting closer to the limit of people the earth can handle" (*filler*)	
"I think it is good for the Norwegian economy that people from other countries come to live here" (*filler*)	
"The nature is strong enough to withstand the effect of modern industrialized nations" (Fooks, et al., 2017, p. 301) (*filler*)	
"The earth has more than enough natural resources if we learn how to extract it" (Fooks et al., 2017, p. 301) (*filler*)	

Drag the bars to indicate the degree to which you agree or disagree with the statements below (Strongly disagree – strongly agree)	
"I believe the individual consumer can contribute to reduce climate change" (Austgulen, 2012, p. 31)	
"We cannot wait until science is 100% certain before we start acting to reduce climate change" (Austgulen, 2012, p. 14)	
"I am worried about the consequences climate change can have for us humans" (Austgulen, 2012, p. 14)	
"Claims that suggest human activity is changing the climate are exaggerated" (Austgulen, 2012, p. 14)	X
"The extent of flood and heatwaves is not increasing, it is just media that is reporting more on it" (Austgulen, 2012, p. 14)	X
"The evidence for climate change is trustworthy" (Austgulen, 2012, p. 14)	

Follow-up and demographics

- "What did you think about this study?"
- "What did you think about the facts that were presented in the study?"
- "Did you believe in the facts that were presented?" Yes / no

- “Were you surprised by the facts that were presented?” Yes / no
- “Had you ever thought about climate refugees before?” Yes / maybe / no
- “Please state your gender” male / female / prefer not to say
- “How old are you?”
- “What is your level of education?”
    - High school/A-level or similar
    - Undergraduate degree or similar
    - Postgraduate degree or similar
    - Doctoral degree
    - Other (please specify
- “Are you a student at present?” Yes / no
- “What is your nationality?”

Appendix B

Results of ANOVA Study 1

Table 1

The SPSS output of the 2x2 ANOVA on climate change attitudes. The within-subjects measure was time (pre- and post-manipulation). The between-subjects' variable was condition (experimental vs. control).

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.
time	Linear	,080	1	,080	,699	,405
time * cond	Linear	,098	1	,098	,853	,358
Error(time)	Linear	11,504	100	,115		

Tests of Between-Subjects Effects

Measure: MEASURE_1
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	,096	1	,096	,114	,737
cond	1,041	1	1,041	1,234	,269
Error	84,296	100	,843		

Table 2

The SPSS output of the 2x2 ANOVA on refugee attitudes. The within-subjects variable was time (pre- and post-manipulation). The between-subjects variable was condition (experimental vs. control).

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.
time	Linear	,062	1	,062	,634	,428
time * cond	Linear	,108	1	,108	1,111	,294
Error(time)	Linear	10,350	106	,098		

Tests of Between-Subjects Effects

Measure: MEASURE_1
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	,077	1	,077	,075	,785
cond	,227	1	,227	,220	,640
Error	109,065	106	1,029		

Appendix C

An overview of the questionnaire of Study 2

Attitudes pre-manipulation

Statements marked with an X in the reversed column are reversed in score.

Drag the bars to indicate the degree to which you agree or disagree with the statements below (strongly disagree – strongly agree)	Reversed
"Most immigrants make an important contribution to Norwegian working life" (SSB, 2016, p.54)	
"Most immigrants abuse the system of social benefits" (SSB, 2016, p.54)	X
"Most immigrants are a source to insecurity in the society" (SSB, 2016, p.54	X
"All immigrants should have the same opportunities to get a job as Norwegians" (SSB, 2016, p.54)	
"Most immigrants enrich the cultural life in Norway" (SSB, 2016, p.54)	

Drag the bars to indicate the degree to which you agree or disagree with the statements below (strongly disagree – strongly agree)	Reversed
"I am concerned about climate change" (Christensen & Knezek, 2015, p. 788)	
"I believe there is evidence for global climate change" (Christensen & Knezek, 2015, p.788).	
"The actions of individuals can make a more positive difference in global climate change" (Christensen & Knezek, 2015, p.788).	
"Human activities cause global climate change" (Christensen & Knezek, 2015, p.788).	
"We cannot do anything to stop global climate change" (Christensen &	X

Knezek, 2015, p.788).	
"Knowledge about environmental problems and issues is important to me" (Christensen & Knezek, 2015, p.788).	
"I think most of the concerns about environmental problems have been exaggerated" (Christensen & Knezek, 2015, p.788).	X
"Things I do have no effect on the quality of the environment" (Christensen & Knezek, 2015, p.788).	X
"It is a waste of time to work to solve environmental problems" (Christensen & Knezek, 2015, p.788).	X

Manipulation sound clips:

The control sound clip was the sound clip of this video: https://www.youtube.com/watch?v=UNP03fDSj1U (Try something new for 30 days – Matt Cutts) (Cutts, 2013).

The experimental sound clip was drafts adapted from the podcast The People vs. Arctic Oil produced by Radio Wolfgang, episode 1 (Manley, Rodriguez & Cormac, 2017). The story is presented by Joanna Sustento. Retrieved from https://www.radiowolfgang.com/s/unburnable:-the-people-vs.-arctic-oil/01-the-storm

Kama muta measure (adapted from Zickfeld et al., in press).

Please answer the following questions with regard to the podcast (Not at all – very much, 7-point scale, 0-6)	Type
"I was moved" (Zickfeld et al., in press, p. 70)	KM
"I was touched" (Zickfeld et al., in press, p. 70)	KM
"I felt angry" (Zickfeld et al., in press)	Anger
"The clip was heartwarming" (Zickfeld et al., in press, p. 70)	KM
"The clip was awe-inspiring" (Zickfeld et al., in press)	
"I had moist eyes or cried" (Zickfeld et al., in press, p.69)	KM
"I had goosebumps or chills" (Zickfeld et al., in press, p. 69)	KM
"I felt warm or other feeling in the center of my chest" (Zickfeld et al., in press, p.69)	KM
"I felt outrage" (Zickfeld et al., in press)	Anger
"The clip made me furious" (Zickfeld et al., in press)	Anger
"I was saddened" (Zickfeld et al., in press)	Sadness
"I felt dejection" (Zickfeld et al., in press)	Sadness
"The clip depressed me" (Zickfeld et al., in press)	Sadness
"The clip made me fearful" (Zickfeld et al., in press)	Fear
"I felt anxious" (Zickfeld et al., in press)	Fear
"I was frightened" (Zickfeld et al., in press)	Fear

Appraisal (not used in the present analyses) (from Zickfeld et al., in press).

Please answer the following questions with regard to the podcast.
"In this clip I heard about…" (Zickfeld et al., in press) (not at all – very much, 0-6 scale)
"… an incredible bond" (Zickfeld et al., in press, p.69)
"… an exceptional sense of closeness appear" (Zickfeld et al., in press, p.69)
"… a unique kind of love spring up". (Zickfeld et al., in press, p.69)
"… an extraordinary feeling of welcoming or being welcomed." (Zickfeld et al., in press, p.69)

Motivation measure (intentions)

Climate intentions

We adapted these questions from an earlier study in the kama muta project on the influence of kama muta on climate change intentions. The version used for this current study was a shortened version of the original scale, based on the reliabilities of the items.

After hearing the story, to what extent do you intend to: (very unlikely to very likely, sliders 0-100)
"Eat less meat"
"Tell the story to someone else"
"Seek out information about how the environment is impacted by humans"
"Try to throw away less food"
"Try to make other people hear the audio clip"
"Volunteer or campaign for an organization aiming to reduce global warming"
"Try to find out how an increase in storms, foods, droughts, wildfires and sea levels can be avoided"

"Discuss the audio clip with others"
"Invest money in reducing my carbon footprint (i.e. buying energy saving appliances and electronics)"
"Support environmental organizations with money or actions"

"Compared to today, should it be easier for refugees and asylum seekers to get residence permits in Norway, should it be more difficult, or should it remain the same as today?" (SSB, 2016, p. 55)

Much easier	Somewhat easier	Same as today	Somewhat more difficult	Much more difficult

Intentions refugees

Drag the bars to indicate the degree to which you agree or disagree with the statements below (strongly disagree – strongly agree, sliders 0-100)
"There should be a more open discussion about climate refugees"
"The international community should get serious about finding fair solutions for those forced to leave their homes due to climate change"
"Norway should participate in a fair solution where every country shares the responsibility of providing shelter for those who have to flee because of climate change"
"As an oil-producing nation, Norway should be prepared to financially help those who lose their homes because of climate change"
"I want to learn more about climate refugees"
"I want to sign a petition to call for action on climate refugees"
"I want to discuss the issue of climate refugees with my friends"

Demographics

“What is tour gender?” Male / female / other

“What is your age in years?”

“What is your nationality?”

“How many children do you have?” None / 1 / 2 / more than 2

“Do you have pets?” Yes / no

“What is your current relationship status?” Single / in a romantic relation, not living together / living with somebody or married / it’s complicated

“If you have any comments about the study, please leave them below”.

Appendix D

Results of regression analyses Study 2

Table 3:

The SPSS output of the joint regression analysis on effect of emotions of climate change intentions. Climate change intentions (ClimateIntentions) is the dependent variable, and fear, anger, kama muta (KM) and sadness are the independent variables.

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Fear, Anger, KM, Sadness [b]	.	Enter

a. Dependent Variable: ClimateIntentions

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,553[a]	,306	,267	19,12071

a. Predictors: (Constant), Fear, Anger, KM, Sadness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11595,52	4	2898,881	7,929	,000[b]
	Residual	26323,31	72	365,601		
	Total	37918,83	76			

a. Dependent Variable: ClimateIntentions

b. Predictors: (Constant), Fear, Anger, KM, Sadness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	18,287	5,420		3,374	,001
	Sadness	,002	3,024	,000	,001	,999
	KM	7,434	2,104	,460	3,533	,001
	Anger	7,073	3,383	,309	2,091	,040
	Fear	-3,305	2,461	-,221	-1,343	,184

a. Dependent Variable: ClimateIntentions

Table 4

The SPSS output of the joint regression analysis on the effect of variables and condition on climate change intentions. Climate change intentions (ClimateIntentions) is the dependent variable, and fear, anger, kama muta (KM), sadness, climate attitudes pre-manipulation (CCPre), and condition are the independent variables.

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Condition, CCPre, KM, Anger, Fear, Sadness [b]	.	Enter

a. Dependent Variable: ClimateIntentions

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,719[a]	,516	,475	16,18423

a. Predictors: (Constant), Condition, CCPre, KM, Anger, Fear, Sadness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19583,77	6	3263,962	12,461	,000[b]
	Residual	18335,06	70	261,929		
	Total	37918,83	76			

a. Dependent Variable: ClimateIntentions

b. Predictors: (Constant), Condition, CCPre, KM, Anger, Fear, Sadness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-39,230	11,470		-3,420	,001
	Sadness	,573	2,774	,040	,207	,837
	KM	5,569	1,818	,345	3,064	,003
	Anger	3,839	2,923	,168	1,313	,193
	Fear	-1,577	2,151	-,106	-,733	,466
	CCPre	,771	,142	,484	5,439	,000
	Condition	-1,506	5,553	-,033	-,271	,787

a. Dependent Variable: ClimateIntentions

Table 5

The SPSS output of the joint regression analysis on effect of emotions of climate refugee intentions. Climate refugee intentions (RefugeeIntentions) is the dependent variable, and fear, anger, kama muta (KM) and sadness are the independent variables.

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Fear, Anger, KM, Sadness [b]	.	Enter

a. Dependent Variable: RefugeeIntentions

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,366[a]	,134	,086	21,49240

a. Predictors: (Constant), Fear, Anger, KM, Sadness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5144,587	4	1286,147	2,784	,033[b]
	Residual	33258,46	72	461,923		
	Total	38403,05	76			

a. Dependent Variable: RefugeeIntentions

b. Predictors: (Constant), Fear, Anger, KM, Sadness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	52,412	6,092		8,603	,000
	Sadness	-2,681	3,399	-,186	-,789	,433
	KM	3,942	2,365	,242	1,667	,100
	Anger	7,872	3,802	,342	2,070	,042
	Fear	-,310	2,766	-,021	-,112	,911

a. Dependent Variable: RefugeeIntentions

Table 6

The SPSS output of the joint regression analysis on the effect of variables and condition on climate refugee intentions. Climate refugee intentions (RefugeeIntentions) is the dependent variable, and fear, anger, kama muta (KM), sadness, refugee attitudes pre-manipulation (RefugeAttPre), and condition are the independent variables.

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	RefugeAttPre, KM, Condition, Anger, Fear, Sadness [b]	.	Enter

a. Dependent Variable: RefugeeIntentions

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,628[a]	,394	,342	18,23294

a. Predictors: (Constant), RefugeAttPre, KM, Condition, Anger, Fear, Sadness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15132,25	6	2522,042	7,586	,000[b]
	Residual	23270,80	70	332,440		
	Total	38403,05	76			

a. Dependent Variable: RefugeeIntentions

b. Predictors: (Constant), RefugeAttPre, KM, Condition, Anger, Fear, Sadness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-10,415	12,742		-,817	,416
	Sadness	-2,977	3,140	-,206	-,948	,346
	KM	3,495	2,018	,215	1,732	,088
	Anger	5,901	3,248	,256	1,817	,074
	Fear	1,963	2,428	,131	,809	,421
	Condition	-3,279	6,252	-,072	-,524	,602
	RefugeAttPre	,795	,149	,514	5,353	,000

a. Dependent Variable: RefugeeIntentions

Figure 7

The SPSS output of the hierarchical multiple regression procedure on effects on climate refugee intentions (RefugeeIntentions). Climate refugee intentions (RefugeeIntentions) is the dependent variable. Fear, anger, kama muta (KM) and sadness are the independent variables of block 1, and refugee attitudes pre-manipulation (RefugeAttPre), and condition are the independent variables of block 2.

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Fear, Anger, KM, Sadness [b]	.	Enter
2	RefugeAttPre, Condition [b]	.	Enter

a. Dependent Variable: RefugeeIntentions

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,366[a]	,134	,086	21,49240
2	,628[b]	,394	,342	18,23294

a. Predictors: (Constant), Fear, Anger, KM, Sadness

b. Predictors: (Constant), Fear, Anger, KM, Sadness, RefugeAttPre, Condition

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5144,587	4	1286,147	2,784	,033[b]
	Residual	33258,46	72	461,923		
	Total	38403,05	76			
2	Regression	15132,25	6	2522,042	7,586	,000[c]
	Residual	23270,80	70	332,440		
	Total	38403,05	76			

a. Dependent Variable: RefugeeIntentions

b. Predictors: (Constant), Fear, Anger, KM, Sadness

c. Predictors: (Constant), Fear, Anger, KM, Sadness, RefugeAttPre, Condition

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	52,412	6,092		8,603	,000
	Sadness	-2,681	3,399	-,186	-,789	,433
	KM	3,942	2,365	,242	1,667	,100
	Anger	7,872	3,802	,342	2,070	,042
	Fear	-,310	2,766	-,021	-,112	,911
2	(Constant)	-10,415	12,742		-,817	,416
	Sadness	-2,977	3,140	-,206	-,948	,346
	KM	3,495	2,018	,215	1,732	,088
	Anger	5,901	3,248	,256	1,817	,074
	Fear	1,963	2,428	,131	,809	,421
	RefugeAttPre	,795	,149	,514	5,353	,000
	Condition	-3,279	6,252	-,072	-,524	,602

a. Dependent Variable: RefugeeIntentions

Excluded Variables[a]

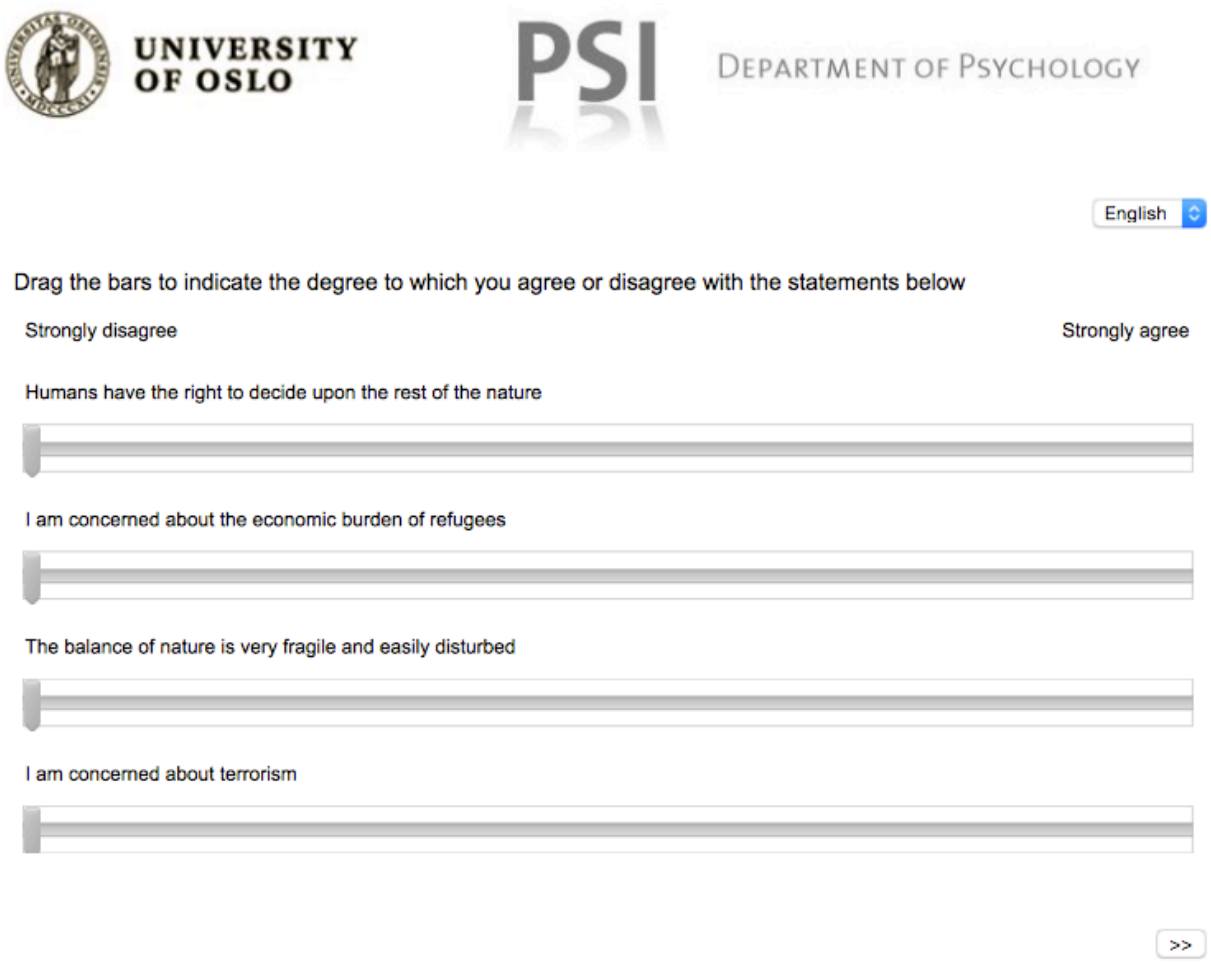
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	RefugeAttPre	,520[b]	5,484	,000	,545	,953
	Condition	-,161[b]	-,998	,322	-,118	,461

a. Dependent Variable: RefugeeIntentions

b. Predictors in the Model: (Constant), Fear, Anger, KM, Sadness

Appendix E

Example of layout for the statements and sliders of the questionnaires



Appendix F

Pre-registration for Study 1

Climate refugees: Norwegian attitudes and knowledge

Created: 08/19/2017

Author(s)
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1 **What is the main question being asked or hypothesis being tested in this study?**
How may attitudes towards climate change and refugees be linked to knowledge of climate refugees, and how may information of climate refugees alter such attitudes?

2 **Describe the key dependent variable(s) specifying how they will be measured**
Answers on a 5-point questionnaire scale will be coded as positive or negative attitudes. Answers given prior to and after getting information about climate refugees will be compared to test whether information can alter attitudes.

3 **How many and which conditions will participants be assigned to?**
The study has a within-subjects design, where all subjects will be presented with similar stimuli. The participants' attitudes towards climate change and refugees will be tested prior to and after being presented with information about climate refugees. The comparison between the pre- and post- information responses will be compared to test whether such information can alter individuals' attitudes.

4 **Specify exactly which analysis you will conduct to examine the main question/hypothesis.**
The main hypothesis will be tested using t-tests to compare the pre- and post-information responses. This enables us to see the difference in responses before compared to after being presented with information and how significant this potential difference is. Furthermore, regression analysis will be used as a way to examine which factors affect each other and which are related. Responses to questions about climate

change and questions about refugees will also be correlated to test how these interact. For instance, this enables us to test whether people who have negative attitudes towards climate change also has negative attitudes towards refugees, etc. Statistical outcome with a p-value of <0.05 will be considered significant.

5 Any secondary analyses?

Age and gender will be included to test whether these factors may have any significant impact on the results.

6 How many observations will be collected or what will determine sample size? No need to justify decision, but the precise about exactly how the number will be determined.

The sample will be undergraduate psychology students in the PSY1101/PSYC1204 course. We aim to get 100 students to participate in the study.

7 Anything else you would like to pre-register (e.g. data exclusions, variables collected for exploratory purposes, unusual analysis planned)?

8 Have any data been collected for this study already?

No data has been pre-collected.

9 The questionnaire: where are the questions adapted from?

The questions are divided into three parts: (a) attitudes towards climate change, (b) attitudes towards refugees, and (c) attitudes and knowledge about climate refugees.

a) **Attitudes towards refugees**. These questions are adapted from Statistics Norway's (SSB) 2016 survey. These questions will be accompanied by a five-point scale on which participants are to rate the degree to which they agree or disagree with the claims. This scale ranges from "strongly agree" to "strongly disagree".

Blom, S., Statistisk sentralbyrå. (2016). *Holdninger til innvandrere og innvandring 2016*. Oslo, Norway. Retrieved from https://www.ssb.no/befolkning/artikler-og-publikasjoner/holdninger-til-innvandrere-og-innvandring-2016

b) **Attitudes towards climate change**. Questions for this part of the study will be adapted from a project in cooperation with the Norwegian National Institute for Consume Research (SIFO). Also these questions will be accompanied by a 5-point scale, similar to that in the previously mentioned part. This is done to create coherence in the questionnaire.

Austgulen, M. H. (2012). *Nordmenns holdninger ti klimaendringer, medier og politikk*. Statens institutt for forbruksforskning, prosjektnotat nr. 4. Retrieved from http://www.hioa.no/Om-HiOA/Senter-for-velferds-og-arbeidslivsforskning/SIFO/Publikasjoner-fra-SIFO/Nordmenns-holdninger-til-klimaendringer-medier-og-politikk

Attitudes and knowledge about climate refugees. The questions for this part of the study will be originally made, based on information from different trustworthy sources. These questions will be true or false questions, and will be followed by information about the correct answer.

Appendix G

Pre-registration for Study 2

The pre-registration for Study 2 was registered to AsPredicted.org (https://aspredicted.org).

As Predicted:"Klimaflyktninger: norske holdninger, kunnskap og følelser" (#8601)

Created: 02/21/2018 08:34 AM (PT)

Author(s)

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1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

Does listening to a personal account of a victim of climate change-related floods lead to more intention for various types of climate action than a control audio file independent of prior climate attitude and other emotions evoked? Is this effect mediated by increased kama muta? \r\n\r\n1. We predict that the type of story (personal vs. neutral) influences the amount of kama muta experienced such that participants feel the most kama muta in the personal condition (IV-mediator). We predict that the amount of kama muta evoked by the story predicts intention when controlling for prior climate attitude, evoked anger, sadness and anxiety. \r\n\r\n3. Finally, we predict that when we control for type of story (personal vs. neutral) then kama muta significantly predicts intentions.

3) Describe the key dependent variable(s) specifying how they will be measured.

- 1. A self-report questionnaire adapted from prior studies and with our own items specific to the manipulation with four subscales: Intention to learn more about climate change, to discuss the report and share it with others, to change one\'s personal behaviour and to support climate policies or groups. We expect all intention items to form one reliable scale (although with several subfactors). We will thus calculate a cronbach\'s alpha for all items together and exclude items with a loading of less than .30 on this scale. The mean score of the remaining

items serves as the dependent variable intention. Mediator: After the audio clip, participants answer questions about Kama muta evoked by the audio clips (3 items on labels: I was moved; I was touched; It was heartwarming and 3 items on bodily sensations: I had moist eyes or cried; I had goosebumps or chills; I felt a warm or other feeling in the center of my chest). Answers on these 6 items will be averaged into a kama muta index. Along with these items, anger, fear, and sadness responses will be assessed with 3 items each and averaged into an anger, fear and sadness index. Awe is assessed with one item as distractor.

Kama muta appraisals will be assessed with four items: In this clip, I heard about an incredible bond / an exceptional sense of closeness appear / a unique kind of love spring up / an extraordinary feeling of welcoming or being welcomed. Answers will be averaged into an appraisal index. Moderator: We assess attitudes towards climate and refugees before the audio clip with questions adapted from Statistics Norway (2016) and Norwegian National Institute for Consumer research (Austgulen, 2012). After the sound clip and kama muta measure, we assess intentions and attitudes towards climate change and climate refugees. 1) Intentions to act upon climate change consists of 10 items; 2) attitues about climate change is measured with 9 items; 3) attitudes towards climate refugees is measured with 7 items.

4) How many and which conditions will participants be assigned to?

2 conditions between subjects design: (1) personal story: participants hear a personal story about experiencing a typhoon, and a family connection (2) neutral story: participants will be presented with a presentation about trying something new for 30 days. Participants are randomly allocated to one of the two conditions.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Multiple regressions (alpha level .05 for all models): Regression of kama muta index on type of story (personal vs. neutral). Regression of intention on prior climate attitude and kama muta, anger, sadness and anxiety indices. Regression of intention on type of story, prior climate attitude, kama muta, anger, sadness and anxiety indices.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

We exclude participants based on reporting technical problems with the audio and based on not listening to the whole story, determined by whether they stay the full length of the audio

on the page (-10 %). We also exclude participants who answer less than 70 % of the questions, and those who answer our manipulation check question wrong.

7) How many observations will be collected or what will determine sample size?

No need to justify decision, but be precise about exactly how the number will be determined. Using power analysis for mediation models (Schoemann, Boulton & Short, 2017) setting path a (r = .20) and b (r = .35) to small effects based on previous findings suggested a sample size of 185 for 80% power for an alpha level of .05. We thus aim for at least 185 participants.

8) Anything else you would like to pre-register?

(e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

We predict that people who have experienced similar catastrophes themselves or their close ones, and those high in empathic concern, feel more kama muta, particularly in the kama muta condition. We further predict that prior concern about the climate leads to more kama muta and more intentions. We also expect a larger effect of condition on kama muta and intention for those high in concern about the climate. We further expect that the appraisal index shows a similar pattern as the kama muta index in that it also mediates the effect of condition on intentions. Finally, we check the effect of gender, age, education level and prior mood on the findings.