Justifying compulsory education for sustainability

Author:
Nicky VAN DIJK

Supervisor:
Dr. Mariette VAN DEN HOVEN
Dr. Anders SCHINKEL
Dr. Peter LAWRENCE

A thesis submitted in fulfilment of the requirements
for the degree of rMA Philosophy

in the

Department of Philosophy and Religious Studies

June 19, 2018

"global warming doesn't [...] violate our moral sensibilities. It doesn't cause our blood to boil (at least not figuratively) because it doesn't force us to entertain through that we find indecent, impious or repulsive. [...] Moral emotions are the brain's call to action. [...] The fact is that if climate change were caused by gay sex, or by the practice of eating kittens, millions of protesters would be massing in the streets."

Daniel Gilbert, *Los Angeles Times, 2006*

UTRECHT UNIVERSITY

Abstract

Faculty of Humanities
Department of Philosophy and Religious Studies

rMA Philosophy

Justifying compulsory education for sustainability

by Nicky VAN DIJK

Though many acknowledge the need for climate action, and though many see the opportunities education offers to impact the development of citizens, only few are in favour of compulsory education for sustainability. This thesis argues in favour of the permissibility and even benefits of enforcing education for sustainability on all state funded schools. First the seriousness, urgency and complexity of the climate change problem is addressed. Individual's current inertia when it comes to engaging in a sustainable life style calls for education to engage the affective system of their students, and to orient them towards more sustainable values. This means that the current mainstream approach of education *about* sustainability, where students are merely *informed* about (their influence on) climate change, should be replaced by education *for* sustainability, aiming at actively *forming* students to collectively embrace a sustainable life style. Second, it is argued that promoting sustainability, even when this conflicts with students' aspirations, can be considered a responsibility of schools. But given education for sustainability's transformative ambitions, and the vague or questionable nature of the concept of sustainability, many still oppose compulsory education for sustainability. To answer to these worries, third, the concept of sustainability is redefined and clarified, aiming to formulate an understanding that no one could reasonably reject. Here I argue that sustainability should be understood in a way both sufficiently open and inclusive not to promote questionable views, as well as adequately clear and purposeful in order to be able to guide educational practice. When founding education for sustainability of this conception, no specific (controversial) conception of sustainability is imposed on children, and children are still able to critically examine their take on sustainability—but it also offers a framework in which children could potentially be raised to adequately satisfy the demands of sustainability.

Acknowledgements

I would like to thank my supervisor Mariette, and second and third reader Anders and Peter for their invested time, support, criticisms and feedback. Especially Mariette, with her expertise in philosophy of education and her background in more non-ideal and applied philosophy, has been an unmistakable positive influence in my search for pursuing philosophy of education. I would also like to thank Marc Davidson, lecturer at the University of Amsterdam, for introducing me to the field of climate ethics, and leaving me with an enormous sparking interest in its debates. Next to this I am thankful for the wider research climate at the philosophy department at Utrecht University, including the Wippermaffel students providing feedback on my initial ideas for this thesis. I am especially grateful to Joel, having an immeasurable impact on my past five years of philosophy education, for his motivational words and wisdoms in between meetings in the hallway. I am realising that my nagging eye for educational improvement has made his life as a teacher and program coordinator far more complicated, and I appreciate his patience in these moments.

Next to this, I am thankful for my dance scene, and especially my teaching partners and friends Jaro, Ellen and Danny. Being able to clear my mind every evening, and providing me with the needed physical movement and laughs gave balance to my otherwise sitting existence glued to my laptop. Thanks to Leonie for her motherly support and last minute feedback. And last but not least, I cannot begin to express my gratefulness when thinking about the support I have experienced from my partners, Lucas, Johan and Ronald. I would like to thank them for their patience with my endless (nightly) pursuits for improving education and fighting unsustainable life styles, and especially their limitless support, whether this concerned everlasting discussions about the content of my thesis, improving my English writing, or cooking meals when I was absorbed in the writing process.

List of Abbreviations

EfS   Education for Sustainability

ESD   Education for Sustainable Development

GHG   Green House Gas(ses)

IPCC   Intergovernmental Panel on Climate Change

SD   Sustainable Development

Contents

Chapter 1

Introduction

Many see the need for collectively embracing a more sustainable life style. And many see the opportunities education offers to have an immense impact on the development of citizens. Nevertheless, very few are in favour of (compulsory) education for sustainability. Criticism may follow from the belief that societal problems should not be put on the plate of teachers. Or from the conviction that neither states nor schools are justified to pass on specific values, as this is remarkably similar to promoting a state ideology and/or manipulating the children of the nation. Or one may find education for sustainability questionable because one is sceptic about the need for sustainability in the first place.

In this thesis I will argue that *compulsory education for sustainability*—that is, actively promoting a sustainable life style, including transmitting the needed values and dispositions—*is not only permissible, but is even favourable* given the current global environmental problems we face. The aims of this thesis are threefold. First, I aim to *gain deeper understanding of the climate change problem, and especially of people's current inaction when it comes to acting sustainably*. To do so, I will link climate science discussing what is likely needed to prevent people getting harmed by severe effects of climate change, with moral psychological research. Though this I hope to give an insight into why even agents who seem very motivated to act sustainably participate inadequately in climate action. This insight is needed to assess what may be needed to collectively move towards a more sustainable life style, and therefore to assess policy proposals for educating sustainability to children. I will conclude chapter 2 with a short overview of cognitive and dispositional changes individuals should adhere to when wanting to minimise the serious effects of climate change, all of which able to guide educational practice.

Second, I will *link these prerequisites for a collective sustainable life style to the role education could play in engaging young citizens in this*. Given that adhering to a sustainable life style can pose tensions with pursuing one's individual aspirations, and given current education is more focused on developing the individual, I will argue that education also has responsibilities for the collective. In chapter 3 I aim to argue to what extent promoting sustainability can be considered a responsibility of schools, even when this may conflict with the aspirations of individual students.

After these two chapters I hope to have convincingly shown that climate change

is a serious, urgent and complex problem; that moving towards a sustainable future for all asks for a change in our value system; and that it is partly schools' responsibility to support children's engagement with a sustainable life style. In chapter 4 I aim to *answer any hesitations one may have concerning making education for sustainability compulsory for all state funded schools.* I will specifically address the central concept of education for sustainability—indeed, 'sustainability'—and explain how this concept can be understood as both sufficiently open and inclusive not to promote questionable views, as well as adequately clear and purposeful in order to be able to guide educational practice.

In the last chapter I will conclude by summarising a specific account of education for sustainability that I believe is justified to enforce in all state funded schools in Western developed countries. I will suggest some ways in which my research can be applied in educational policy and practice, and propose some directions for future research.

This thesis forms a contribution to current (educational) climate literature in (at least) two ways. First, it discusses the permissibility and desirability of compulsory education for sustainability in light of recent climate science. As empirical research into the risks and severity of climate change became more certain and extended over the past years, the call for collectively adopting a sustainable life style becomes more urgent. Arguments against education for sustainability criticising its weak foundation or debatable need are countered. Second, I will pursue an ameliorative analysis of the concept sustainability (in chapter 3. Assuming the need for a citizenry concerned with sustainability (as defended in chapter 1), and assuming that education could have a potential role in this (defended in chapter 2), I will discuss how we can best understand sustainability in order for it to be applicable in the educational context. Here I combine recent moral psychological research concerning how individuals are motivated towards climate actions with Scanlon's contractualism, to form a minimal account of sustainability no person can reasonably reject. Here, as in the rest of my thesis, I pursue non-ideal philosophy. Rather than attempting a full conceptual analysis of (education for) sustainability, or thoroughly engaging in specific theoretical normative debates concerning e.g. our obligations towards future generations, I focus on providing an analysis of the concept relevant for educational practice.

Chapter 2

The seriousness, urgency and complexity of climate change

In order to see the need for (compulsory) environmental education, one first needs to understand the problem of climate change properly. Understanding the seriousness, urgency and full complexity of the problem will enable us to assess the desirability and likely effectiveness of proposals for solutions to the climate change problem.

In this chapter I will elaborate on why climate change is a problem that is especially hard to solve. Focusing on (moral) psychological explanations of people's inaction I will provide a list of what seem to be necessarily prerequisites needed to enable large scale behavioural change towards sustainability. For the educational context this will have two consequences. First, the current trend of knowledge transmission—which I will call education *about* sustainability—is insufficiently able to effectively change children's behaviour towards the more sustainable alternatives. Passing on factual knowledge, as we will see, does not adequately motivate students, and instead appealing to the affective system of people is needed. Second, the prerequisites laid out at the end of this chapter fundamentally clash with many citizen's current value system, for example because it shows the need for more cosmopolitan thinking and less freedom to e.g. consume. Therefore, sustainability does not simply ask to *inform* students about climate changes, but it calls for passing on values compatible with sustainability. Taking these two together, I will argue for education *for* sustainability in this chapter. This aims at *forming* (instead of merely informing) children about climate change. It aims at explicitly passing on a value system that is compatible with sustaining the collective for the coming generations.

Education *for* sustainability is very demanding and in the current liberal climate very controversial. Because of this, its justification calls for answering additional questions: Is education for sustainability at all a responsibility of schools? One could also argue, for example, that teaching about sustainability is the responsibility of parents, or the state. And more problematically: If education for sustainability—with its strong focus on passing on values beneficial for the collective—conflicts with students' individual aspirations or development, what should precede?

In the current chapter I aim at laying the groundwork for answering these questions (in chapter 3). In section 2.1 I will discuss the seriousness and urgency of climate change based on current climate science (summarised by the Intergovernmental Panel on Climate Change (IPCC)). In section 2.2 I will examine why this problem is very complex, working with Stephen Gardiner's *Perfect Moral Storm* [2011]. In his book Gardiner links the variety of problems surrounding climate change to moral psychological research, explaining the inaction of citizens and policy makers when it concerns sustainability. Drawing on this, in section 2.3 I will discuss several pathways to sustainability, using psychological research showing that even though citizens are aware of climate change, and even though they show concern for the problem, they give it extremely low priority. In the concluding section (2.4) I will summarise what seem to be prerequisites for collective behavioural change towards sustainability, and discuss the claim this makes on education.

2.1   An urgent and serious problem

I believe that it has been shown extensively that climate change poses a real and potential threat to human and other life. I will assume that scientific evidence for this is very substantial, and that one is not justified to cast it aside as some green or left-wing conspiracy. In this section I will briefly state the currently commonly known facts and highlight several important aspects of this.

Climate change is caused by anthropogenic greenhouse gas (GHG) emissions since the pre-industrial era, "driven largely by economic and population growth" [IPCC 2014, 4]. This is "*extremely likely* to have been the dominant of the observed warming since the mid-20th-century" [ibid., italic in original text].[1] Though the IPCC report mainly discusses *gradual* climate change due to an accumulation of CO_2 in the atmosphere, an *abrupt* change in climate is also plausible. In this case, a certain threshold of temperature rise (or its effects) is reached, resulting in a steep increase in global temperature and extreme weather events. This could for example happen through the weakening of the ocean conveyor of the North Atlantic, which supports the Gulf Stream to Western Europe [Alley 2004; Gagosian 2003; Lenton et al. 2008; Strouffer et al. 2006; Vellinga and Wood 2002]; or major sea level rise through ice sheet disintegration [Hansen 2004, 74; 2005, 275; Massom 2018; Rintoul et al. 2018].

Whether climate change is merely gradient or also abrupt, it is certain to cause certain effects, such as a retreat of glaciers, increased surface melting of the Greenland ice sheet, global mean sea level rise, increases in global upper social heat content, and increases of heavy weather and climate events [IPCC 2014, 5ff.]. In all emission scenarios of the IPCC reports the surface temperature is projected to rise over the 21st century [idem., 10]. This means that even if GHG emissions are stopped

---

[1]The minor uncertainty that is expressed with "extremely likely" is often interpreted overenthusiastically, i.e. people think that the scenarios and risks stated in the IPCC reports are less likely to happen than intended by the researchers [Budescu et al. 2009].

at this very moment, the associated impacts of climate change will continue for centuries [idem., 16]. Risks of abrupt and irreversible changes increase with the magnitude of warming [ibid.]. As a result of the increasing warmth and the (so far) ongoing accumulation of CO_2, the effects of climate change will mainly be felt by future generations—even if we stop emitting GHG now.

Irrespective of the cause of climate change, these effects will have an impact on both natural and human systems. Among others, risks are the reduction of renewable surface water, a reduction in food security, compromise of common human activities such as working outside, and an increase in ill-health [idem., 13ff.]. In urban areas there are "risks from heat stress, storm and extreme precipitation, inland and coastal flooding, landslides, air pollution, drought, water scarcity, sea level rise and storm surges" [idem., 15]. In general, the risks are unevenly distributed and greater for developing countries, as risks are amplified for countries lacking essential infrastructure and, if needed, resources for planned migration [idem., 15-6]. Also, developing countries in the global south are expected to experience higher exposure to extreme weather events, e.g. droughts or floods, simply because of their geographical location [idem., 16].

To reduce these risks, both adaptation and mitigation are needed. On the one hand, adapting to new risky situations enables countries to prevent or reduce negative consequences of climate change. Adapting sooner rather than later increases "the prospect for effective adaptation, reduce[s] the costs and challenges of mitigation in the longer term and contribute[s] to climate-resilient pathways for sustainable development" [idem., 17]. On the other hand, emissions need to be substantially reduced over the next few decades, as well as be near zero by the end of the century [idem., 20]. As one country's mitigative measures are not sufficient to achieve this, international cooperation is necessary for effective mitigation. Even if proper adaptive measures are taken, without mitigation climate change will lead to "severe, widespread and irreversible impacts" [idem., 17].

No single adaptation or mitigation option is sufficient by itself. Therefore, adequate policy and cooperation on all scales is needed, including "effective institutions and governance, innovation and investments in environmentally sound technologies and infrastructure, sustainable livelihoods and behavioural and lifestyle choices" [idem., 26]. The IPCC report states three spheres of change, being the practical, the political and the personal [idem., 27]. The practical sphere includes social and technical innovations, behavioural shifts, and institutional and managerial changes that produce substantial shifts in outcomes. The political sphere focuses on political, social, cultural and ecological decisions consistent with the reduction of vulnerability and risk, and the support of adaptation, mitigation and sustainable development. The last sphere describes changes of individuals, such as individually and collectively held assumptions, beliefs, values and worldviews that influence individual's response to climate change. This means that it is acknowledged

that combating climate change does not merely come down to political decisions—individuals' conceptions and dispositions concerning sustainability are relevant for mitigation to be effective, as the social acceptability and effectiveness of climate policies "are influenced by the extent to which they [...] depend on regionally appropriate changes in lifestyles or behaviours" [idem., 26].

To conclude, climate change is anthropogenically caused through high GHG emissions following from economic and population growth. With regard to its effects and the corresponding impact on natural and human systems, three aspects are important to highlight, all showing that climate change is an immense collective problem. First, the *risks of climate change fall mainly on future generations and the global poor*, rather than the current generation of developed countries. As the accumulation of CO$_2$ emissions is still ongoing, and because the consequences of these emissions will have a delayed effect, the more serious risks are burdened on people living decades or maybe even centuries from now. The global poor will be hit harder as they live on a geographical location that is likely to experience more extreme weather events. On top of this, developing countries lack the needed infrastructure and resources for adaptation (or, if needed, migration). Second, to diminish the risks of climate change, *both mitigation of GHG emissions and adaptation are necessary.* Even most tech-optimists believing that the solution for climate change lies in future technology such as geoengineering argue that mitigation of emissions is an essential aspects next to technological enhancements helping with adaptation. Third, for both adaptation and mitigation to be sufficiently successful, *international cooperation is necessary*. One country's reduction of emissions is helpful, but will likely not have a significant impact when other (developed) countries do not follow suit.

2.2   A complex problem

In section 2.1 the cause, effects and impact of climate change was laid out as it is now commonly known. However, given climate change's seriousness and urgency one may wonder: Why is not everyone trying very hard to diminish the risks of climate change at the moment? In his book *The perfect moral storm* Stephen Gardiner describes why it seems to be so hard to tackle climate change. He calls it a perfect moral storm, an "unusual intersection of a number of serious, and mutually reinforcing, problems, which creates an unusual and perhaps unprecedented challenge" [Gardiner 2011, 7]. Rather than aiming at finding out who is to blame for this inertia, he highlights the complexity of the problem, showing various temptations to which we are vulnerable. Gardiner discusses three 'storms'—the global, intergenerational and the theoretical—to show climate change's complexity. In this section I will discuss them briefly, as I believe understanding the problem of climate change is needed for assessing proposed solutions for climate action in the educational context.

2.2.1 Global storm

The global storm shows how there is an asymmetry of power between rich and poor countries, making it tempting for developed countries to take undue advantage of their position. First, there is a dispersion of causes and effects, as the place on earth where GHG is emitted is irrelevant to the place where it has impact, this being globally [idem., 24]. While developed countries have emitted most, the poor are worst impacted [IPCC 2014; Stern 2007]. Unfortunately, second, poor countries are badly situated to hold the rich accountable [Gardiner 2011, 31]. To further complicate the matter, third, while it may be collectively rational to cooperate, it is not individually rational to do so. GHG are emitted by a vast number of individuals and (social, economic, political) institutions, and, like in a tragedy of the commons, for each of them it is the case that "it is the very same values that make cooperation preferable that drive each agent away from it" [idem., 27]. In a tragedy of the commons, several herdsmen let their cattle eat from the grass of the commons. Everyone wants maximum profit, which is why everyone prefers the existence of rules that binds everyone to overuse the common grassland. Nevertheless, as individual herdsmen it is their desire for profit that drives them to pursue more (and more) cattle, which leads to the collapse of the commons. This analysis of the tragedy of the common is from Garrett Hardin, and his solution to this would be to ensure that there is no possibility to free-ride. This means that the collective rational action becomes the individually rational one—"mutual coercion, mutually agreed upon" [Hardin 1968; 1247]. However, fourth, the needed institutions to enforce a binding climate policy are currently not existing.

To complicate the matter, fifth, though the IPCC report seems clear about the causes, effects and impact of climate change, there is some scientific uncertainty about the magnitude and distribution of effects [idem.,30]. Sixth, the source of climate change, being the emitting of GHG, has deep roots in the infrastructure of current civilizations. Cutting down on emissions would have an (at least short term) impact on the economic organisation of developed countries and the economical aspirations of developing countries [ibid.]. The scientific uncertainty combined with the deep roots of climate change leads to a status quo bias in favour of uncertainty, and lack of action by those having an interest in the continuation of the current economic system. On top of this, seventh, there seems to be a further risk for developed countries when they unite to take climate action: this would show that it is indeed possible and sometimes necessary to unite globally, which could encourage some to raise attention to other global injustices, such as poverty, human rights violations and global inequality [idem., 31ff.].

2.2.2 Intergenerational storm

There is not just a global asymmetry between rich and poor countries, but also an asymmetry between the current generation and future generations, which Gardiner

calls the intergenerational storm. While the current generation can decide whether it pursues climate action, and through that can affect the prospects of future generations, the future generations cannot have an influence on the actions of the current generation. This means that, first, there is again a fragmentation of agency. But in this case it is not simply hard to unify both parties (as it is with developing and developed countries), but it is plainly impossible for temporally fragmented agents to do so. This means that, though climate change has characteristics of a tragedy of the commons problem, a solution proposed by Hardin cannot be enforced as there is no reciprocity between the agents. A second complexity is again the dispersion of cause and effect, but this time temporally. The CO_2 that is currently emitted (and has been emitted in the past) stays in the atmosphere for 5-200 years [ibid.]. Unless we can find a way to take CO_2 out of the atmosphere again, this means that climate change is a substantially deferred phenomenon: the full accumulating effects of current emissions will not be realised until the future, and therefore its impact is seriously backloaded [Gardiner 2011, 33ff.]. This means that sustained action and anticipation is required to tackle emissions. Unfortunately, motivating individuals and political agents to this is hard, as the consequences of climate change will be felt in the future, while the benefits of emitting are for the current generation. Even if politicians are motivated to act against climate change, they may only run one election cycle or one political career, making it impossible for one individual to sustain needed action.

2.2.3   Theoretical storm

The last storm consists in our (ethical) theories' ability to respond to the complexity of climate change. According to Gardiner, they are inept as they do not have the skills and basic competence for the task [idem., 41]. On many aspects crucial for the climate change problem, most ethical theories are underdeveloped, e.g. when having to do with scientific uncertainty, intergenerational ethics, international justice, and the relationship between human and non-human nature [idem., 7]. As a result of this, current theories facilitate "exploitation of poor by the rich in the global storm, and of the future by the present in the intergenerational storm" [idem., 43]. Currently climate change action is usually analysed in a cost–benefit analysis. However, this economic tool is very unlikely to vote in favour of climate change action, because (a) there is insufficient scientific evidence about the exact magnitude and distribution of the impact, and (b) the responsibility towards future generation is poorly understood in this method. Neither political theories are likely to demand the combating of climate change, as the behavioural and political change that would be needed for this "is likely to be severely detrimental to concerns that [those theories] hold dear, such as happiness, individual rights, and the integrity of national cultures" [idem.,42]. Though these theories may be of help when analysing national intragenerational problems, they are underdeveloped to be applied when the global and intergenerational storms rush in.

2.3 Why are we not taking adequate climate action?

In the previous sections I laid out why climate change is (i) a serious problem, as the expected effects are major and its impact on both human and non-human systems disastrous; (ii) an urgent problem, asking for both mitigation and adaptation now; and (iii) a complex problem, making it harder for us to take adequate action. In this section I will do another attempt at gaining deeper understanding of climate change's complexity, this time laying out why it seems to be so difficult for (political) agents to take adequate steps for adaptation and mitigation. Understanding the problem on a deeper level is important, as it provides tools for assessing proposals for solutions to climate change. Firstly I will discuss the three options that could explain our lack of action: we do not realise that there is a problem at all, and are therefore not aware of the need to change behaviour (section 2.1); or we do know about the problem, but do not take action because we underestimate its seriousness or urgency (or have different priorities) (section 2.2); or we understand the full seriousness, urgency and complexity of the problem, are very willing to do something, but nevertheless fail to take sufficient action because of some other reason (section 2.3). Here I will mainly focus on (moral) psychological explanations[2] of our inertia (rather than for example discussing the limits of the international legal system, or thoroughly discussing the role of technology. Though these are also essential parts of the solution, they less relevant for the focus of this paper, this being the educational context). In the last section (2.4) I will discuss several proposals to activate people for climate action, and assess them with the gained knowledge of the climate change problem and psychological research concerning our motivation for action. By doing this, I will show that engaging the affective system of individuals seems to be the key to motivating individuals to engage in sustainable behaviour, instead of the often proposed focus on cognition and ratio.

2.3.1 Explanation 1: People are unaware of the problem

It may be the case that the general world population is simply unaware of there being such a thing as climate change, and therefore does not take climate action. Recent research of 119 countries into the predictors of public climate change awareness shows that there are some countries where the majority of the public has never heard of climate change, mainly in African countries, Asia and the Middle East [Lee et al. 2015, 1015]. However, in most developed countries in Europe and in the US and Japan over 90% is aware of climate change [ibid.]. Given that this thesis focuses on the Western world, and given that developed countries are the biggest polluters

---

[2]In this section I will present psychological *explanations* of our inaction. However, these explanations are sometimes also put forward as *justifications* for our inaction. For example, the moral psychological explanation that 'a person is less engaged with a problem because the victims are further away from her bed' could also be stated in justificatory form, such as that 'it is OK for a person to be less engaged with a problem when the victims are further away from her bed.' In this section I will merely discuss explanations, and in the following chapters I will discuss several reasons for why I believe corresponding justifications of inaction are inadequate.

(and therefore the places where most mitigation needs to happen), I will, for the purpose of this thesis, assume that unawareness of climate change cannot explain the lack of climate action.

2.3.2   Explanation 2: People are not concerned about the problem

This same research shows to what extent people from around the globe perceive climate change to be a serious threat (if they were aware of the problem in the first place). It shows that over 90% of Western Europe and Latin America perceive it as a serious threat, against just over half of the US population and a minority in Balkan countries, Russia, China and most African countries [ibid.]. Worldwide, the strongest predictor of climate change awareness is educational attainment. And while in Europe and Latin America the strongest predictor for climate change perceptions is the understanding of it having a anthropogenic cause, in African and Asian countries it is the perception of local temperature change [idem., 1017]. Earlier studies show that, when focusing on the US and Europe, both populations have shown widespread concern about climate change [Leiserowitz 2005, 1437; Lorenzoni and Pidgeon 2006, 86]. Also, both populations seem to have a good grasp of the effects and impact of climate change.[3]

The concern about climate change is felt mostly in relation to the perception of danger for people and non-human nature geographically and temporally distant from us, and far less about local impacts. For example, only 13% of survey participants in the US (n=590) is not primarily concerned about the impacts of climate change on themselves, their family or their local community, as they rate these local impacts to be somewhat unlikely [Leiserowitz 2005, 1437]. Over the past decades, research into climate change perceptions among both Americans and Europeans have consistently shown that they regard climate change as relatively low national priority compared to nearly all other national or environmental issues [Bord et al. 1998; Dunlap and Scarce 1991; Leiserowitz 2005; Lorenzoni and Pidgeon 2006].

As the majority of the population of Western countries seems to be concerned about climate change, one may wonder: why do individuals and politicians underestimate the seriousness of climate change, and give it very low national priority? This is because on the one hand, though we are aware of the facts, we do not 'feel' the seriousness and urgency of the problem. This is because the problem of climate change is often scientifically or economically framed, while our risk perception and willingness to act is primarily influenced by non-factual factors, such as past experiences, trust and personal beliefs, ideology, values and worldviews [Dessai et al.

---

[3]However, very few people associate climate change with extreme weather events such as heat waves, hurricanes and droughts [Leiserowitz 2005, 1439], and the impact on human health. The latter is surprising, considering it is expected to be among the greatest dangers of climate change to human societies [IPCC 2014; Watson and McMichael 2001]. Temperature-related morbidity and mortality, health effects of extreme weather, air-pollution health effects, water and food-borne disease, or vector and rodent-borne disease are all a potential health consequences of climate change [Leiserowitz 2005; McMichael and Githeko 2001; National Assessment Synthesis Team 2001; Patz et al. 2000].

2004; Finucane et al. 2000; Haidt 2012; Lorenzoni and Pidgeon 2006; Markowitz and Shariff 2012; Slovic 2000; Slovic et al. 2002; Weber 2006]. In other words, climate change fails to activate our moral intuition, as this is largely driven by emotional responses to our environment [Bazerman and Tenbrunsel 2011; Greene et al. 2001; Haidt 2001]. "Unlike financial fraud or terrorist attacks, climate change does not register, emotionally, as a wrong that demands to be righted" [Markowitz and Shariff 2012, 243].

The fact that individuals do not seem to feel the seriousness and urgency of the climate change problem results in the neglect of their participation in climate action in several ways. First, climate change is a very abstract problem. The effects are both temporally and spatially distant, and the events are disparate and seemingly incongruous (such as increased rainfall in some regions compared to expected droughts in others). An abstract problem requires "cold, cognitively demanding and ultimately relatively less motivating, moral reasoning" [Markowitz and Shariff 2012, 244]. Second, our judging system is well tuned to respond to intentional injustices. Unfortunately, research suggests that unintentionally caused harms are judged less harshly compared to similar but intentionally caused actions [Guglielmo et al. 2009]. As no one is purposefully trying to change the climate, the actions that do result in this are perceived as normal actions of daily life with unfortunate and unintentional side effects [Markowitz and Shariff 2012, 244]. Third, combating climate change is associated with a threat to one's current way of life [Gifford 2011]. The discomfort that this causes can lead to the rejecting of climate change messages [Clayton et al. 2015]. Fourth, though climate scientists agree on many aspects, there is still a lot of uncertainty about e.g. the magnitude and distribution of impact of climate change. Some research shows that a lack of definitive answers leads to unreasonable optimism [Gifford 2011; Weinstein 1980]. For example, the levels of certainty used in IPCC reports is mostly interpreted overly optimistic, i.e. respondents belief that the future scenarios were less likely to happen than initially intended by the researchers [Budescu et al. 2009]. Fifth, the likely victims of climate change are non-human nature, and people spatially and temporally distant from us. Research suggests that people see outgroup as less deserving of a moral standing [Harris and Fiske 2006], and as a result, treat them worse, even when group membership is arbitrary [Tajfel et al. 1971]. The lower the psychological distance to the victims seems to be, the higher the level of concern for them [Spence et al. 2011].

Concluding, on the one hand studies show that the majority of the Western world is concerned about climate change. But on the other hand, this concern seems to fail to activate our moral intuition, and therefore does not result in climate action. On top on this, recent studies show a further worrisome phenomenon. While the majority of the US and European population is concerned about climate change, a growing part is not. Conservatives in both the US and UK show less believe in and concern about climate change compared to liberals [Guber 2013; McCright and Dunlap 2011; Poortinga et al. 2011]. The right wing conservatives are to a greater

extent rejecting climate science, less likely to engage in behavioural change, and less likely to support climate policy [Costa and Kahn 2013]. Research suggests that the rejection or acceptance of climate change is far more related to political ideology or worldview than any other factor, and that this polarisation has been increasing over time [Kahan et al. 2012].

This diversion can partly be explained by the different moral priorities that both groups have. While liberals mainly judge political stances based on two moral foundations, harm and fairness, conservatives focus on more: they also want to protect the ingroup, therefore valuing foundations such as ingroup-loyalty, respect for authority, and purity or sanctity [Haidt and Graham 2007]. While alarmists—strong believers in the urgency of climate action—hold pro-egalitarian and anti-individualist and anti-hierarchist worldviews, the naysayers—predominantly white, male, Republican and highly religious—hold pro-individualist, pro-hierarchist and anti-egalitarian worldviews, and anti-environmental attitudes [Leiserowitz 2003; 2005]. This research also found that the naysayer group is "politically active, [is] significantly more likely to vote, [has] strong representation in national government, and [has] powerful allies in the private sector" [Leiserowitz 2005, 1440].

Though not much research has been done into the factors enforcing this polarisation, two explanations have been suggested. Once people are affiliated with a certain stand on political issues, e.g. against climate action, they are more likely to interpret conflicting evidence with scepticism, while accepting consistent evidence less critically [Cohen 2003; Lord et al. 1979]. For example, while perceived local warming influences risk perception [Li et al. 2011; Zaval et al. 2014], and while commonly and recently experienced events are more cognitively available [Kahneman and Tversky 1974], naysayers were less likely to (accurately) remember that they had experienced a warmer than usual Summer the previous year [Howe and Leiserowitz 2013].

Another explanation is that individuals experience a sense of belonging when exhibiting values of their ingroup [Baumeister and Leary 1995]. Currently, climate messages are mainly framed in values attractive to liberals, while neglecting to show that it can also be resonant with conservative moral intuitions. This leaves the latter group not merely uninvolved, but morally hostile to the values presented [Markowitz and Shariff 2012].

2.3.3   Explanation 3: People are aware and concerned, but nevertheless insufficiently motivated to act adequately

From the previous sections it follows that most people in the developed world are aware of climate change, and a majority of them is concerned about climate change, but still adequate action is not taken yet. In this section I will show that even for those individuals motivated to take climate action, it will still be very hard to sustain adequate climate action.

As shown above, though individuals are concerned about climate change, they (paradoxically) perceive it to have low national priority. This could be due to what

Weber [2006] has called a 'finite pool of worry.' Though we are concerned, there seems to be a limit as to how much we can be concerned about different aspects in our life. We weigh political choices among each other—for example, increased concern about terrorism after 9/11 seems to have resulted in decreased concern about environmental issues [idem., 115]—but also about our personal worries (that are clearly more cognitively available to us).

When we do act, we seem to have a 'single action bias' [idem.]. We may take one action to reduce a worry that we have, but are much less likely to take further (needed) steps that would provide incremental protection or risk reduction, likely because the first act suffices in reducing our feeling of worry [Linville and Fischer 1991; Weber 2006; 1997]. The characteristics of the problem of climate change, together with our psychological dispositions, form what Gardiner has called moral corruption: the complexity of the problem makes it convenient for us to externalise the harms and costs of climate change over space, time and species [Gardiner 2011]. And the asymmetry between rich and poor, and between the current and future generations, makes it easy for us to misuse our spatial and temporal position. This goes both for individuals as well as policy makers.

2.3.4   Pathways towards a solution

Now the problem of climate change is thoroughly discussed, roughly two pathways to changing the behaviour of individuals are suggested in the literature: appealing to the cognitive or affective system of individuals. The mainstream take is to appeal to people's cognitive system. In the educational context this for example means that proponents for education about sustainability are in favour of transmitting climate science and skills needed for sustainable behaviour to the new generations. On top of this, Gardiner argues that everyone should become a critical thinker, actively linking one's own behaviour to its contribution to climate change. This cognitive approach is appealing, given that it intuitively seems a sufficiently promising approach, and both transmitting facts and stimulating critical thinking is very uncontroversial.

Unfortunately, following the analysis of the problem in the previous sections, the cognitive approach does not seem to be a promising—or at least sufficiently adequate—view. First, there are some signs that education can have a small impact on individuals' reasoning capacities, e.g. through offering classes of logic [Attridge, Aberdein and Inglis 2016; Gigerenzer and Hoffrage 1995; Lehman and Nisbet 1990]. However, this is very minimal, and only when students are sufficiently exposed to this, and are able to apply the abstract logic to practical cases [Bishop and Trout 2017]. Second, Haidt's research shows that individuals mostly first act upon intuition, and find reasons to justify their acts on hindsight. Therefore, cognitive thinking may not be the most promising path towards preventing environmentally

harmful behaviour. Third, some research suggests that more education leads to confirming already existing beliefs [Lee et al. 2015]. As in some regions the most significant factor impacting one's view on climate change seems to be one's pre-existing political stance on this, the cognitive path may lead to more polarisation rather than collective actions towards mitigation.

The alternative path towards behavioural change—and indeed, the far more promising path suggested by the discussed literature above—seems to be to engage the affective systems of individuals. Climate change needs to be something that influences the moral intuition of individuals, as this is what primarily motivates action. On top of this, education for sustainability cannot merely be an additional part in the curriculum, but needs to be ingrained in the school context in a holistic way. I will call this education *for* sustainability as it aims at *forming* a specific kind of (sustainable) individual (compared to education *about* sustainability, which merely aims at *informing* students. Though this may be the more effective path, many would dispute its legitimacy and oppose to its demandingness, especially when placing it in the context of education. As 'manipulating' children into becoming sustainable citizens is intuitively repelled by many, I will discuss this matter more thoroughly in chapter 4.

2.4   Sustainable behaviour and its prerequisites

In the previous sections the seriousness, urgency and complexity of the problem has been laid out, and several explanations have been given for why the global collective is currently insufficiently motivated or able to take adequate climate action. In this last section I aim to summarise some aspects that seem to be needed for collective climate action, i.e. I will state several prerequisites for sustainability that follow from the (moral) psychological literature and climate science above.

Up to this point I have not specified what I understand by 'sustainability'—i.e. what is to be sustained, and for whom, and for how long? Given that this goal is needed to be able to discuss its prerequisites at all, I will first define a working definition of sustainability in 2.4.1. Second, I have assumed but not defended why I believe individuals have a moral responsibility engage in sustainable behaviour in the first place. Given that the prerequisites of collective climate action (by individual citizens) assume that individuals indeed have a responsibility to engage in this, I will argue for this in 2.4.2.

2.4.1   Defining a working definition of 'sustainability'

Dominant in the constitution of our current sustainability discourse is the definition of the Brundtland Commission [WCED 1987]. They do not merely talk about sustainability, but about sustainable development, which "seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the

future" [ibid., 39]. However, this definition has been criticised, as it assumes that sustainability can only coexist with growth or development, not acknowledging the unavoidable impact this has on natural resources [Biesacker et al. 2014]. Though the report acknowledges that economic growth always brings a 'risk' of environmental damage, it weights this with the 'needs and aspirations' of current and future generations. According to feminist writers, economic growth is only acceptable if it is needed to attend to humans' basic needs - not to their 'wants' [Biesacker et al. 2014; Gottschlich and Bellina 2017].[4]

Both the definition of the Brundtland report, as well as the criticisms of feminist writers, are controversial. In this thesis I aim at developing an account of sustainability that can easily be acknowledged by all reasonable agents. Therefore, as a starting point I will use the following less controversial but also less substantive definition of sustainability:

> Something that is sustainable—be it behaviour, a worldview, an ideology, a policy or something else—meets the needs of the present without compromising the ability to meet those of the future.

This definition does not assume that development or economic growth is needed, and neither that one should aim at meeting the aspirations of the present or future. This definition is anthropocentric which means that non-human nature is merely considered to have instrumental value to human's ends. Some would oppose to this, but as it is closer to our common understanding of sustainability, I will take this as a starting point.

Two aspects of this definition are still controversial: it assumes that we have obligations towards humans both spatially and temporally distant from us. Though I cannot justify these assumptions here at length, I will make my assumptions—as minimal as they are—explicit. First, I will assume that the current generation has obligations towards others, also outside of their national borders and also when these people are not in a possibility to reciprocate. This extends to ensuring that one's actions does not actively—be it intentionally or not—prevent others from sufficing their basic needs. Second, I will assume that the current generation has obligations towards yet unborn people. Many philosophers have convincingly argued that it is impossible for a yet unborn child to have rights, and that therefore it cannot be justified to expect the current generation to live less extravagant than they please to do, even if this results in harming future generations. Most famously this was posed by Derek Parfit as the non-identity problem, arguing that something "bad" must be "bad for" someone [Parfit 1987, 363]. Many responses have been given to this problem, as many feel this theoretical riddle should not stand in the way of their moral

---

[4]Next to this, in the Brundtland report sustainability is framed as a field of science, centring around knowledge production. Governance for sustainability is reduced to merely environmental government, focusing too much on efficiency and technology [Gottschlich and Bellina 2017]. Therefore valuing care work and non-human nature is neglected, even though sustainable development is impossible without this.

intuition to care about sustainability for future generations. One answer that I find most promising, and will use as justification for a responsibility for future generation, lies close to our common sense. It is based on the observation that most aspirations that humans find very meaningful in life—be it raising a family, contributing to science, fighting for women's rights, or helping the local soccer club—assume a future for the subject of these aspirations. It would therefore be inconsistent to live unsustainably, as caring about the future is presupposed in the actions that we all currently deeply care about. An open future is essential for giving meaning to one's current life.[5]

2.4.2   Acting sustainably is an individual responsibility

Even though large scale neglect of sustainable behaviour results in risking many people not having access to their basic capabilities, it does not directly follow that it is an *individual* responsibility to act sustainably. For example, it could be a responsibility of policy makers to take this into account, but not of individual consumers. Many reasons against the day-to-day individual responsibility for mitigation have been brought forward in the literature [see Scavenius 2018; Sinnott-Armstrong 2005], but even more frequently and determinantly in discussions among laymen. It is for example argued that (a) individual emissions do not cause any harm or (b) do not have any morally significant effect, and therefore individuals do not have to mitigate. However, even though individual emissions do not make a significant contribution to the overall pollution, it does contribute to the aggregate effects. Also, individual actions do not occur in isolation. They may be noticed by fellow citizens, raise awareness for the (climate) problem, and promote collective (climate) action [Schwenkenbecher 2012].

Further criticisms to seeing acting sustainably as an individual responsibility is the view that (c) only states (and not individuals) are powerful enough to act, and that it is therefore the state's responsibility to promote sustainability, and not an individual responsibility. This objection easily comes together with the view that (d) acting sustainably as an individual would be overly-demanding. The costs of individuals taking individual responsibility are major for the individual herself—she may need to minimise flying, eating meat or consuming. Above all, the individual should decide herself what complies with sustainability and what does not, which is an immense epistemic challenge. Therefore, we cannot expect every single individual to change her lifestyle.

However, demandingness in itself is not a reason to argue against a moral duty. If there is great harm done through a certain action, then the demand that something is sacrificed to prevent this harm is not at all unreasonable—though it should

be in proportion. Indeed, living sustainably is easily too demanding of our 'strictly limited attention', but proper organisation for collective action can overcome these problems deriving from the demandingness objection [see Goodin 2008; Hourde-quin 2011]. In this sense, acting more sustainably "merely requires us to change our habits, to make bigger effort, and to accept a little more inconvenience" [Schwenken-becher 2012, 181]. For nurturing this, schools have great potential, as they are a commonly shared and regulated place where children's habits are formed, and where attitudes concerning effort and convenience are shaped.

Therefore, I conclude that behaving sustainably is an individual responsibility, since unsustainable behaviour does have an morally significant negative effect on others, and since individuals are capable of acting sustainably (without expecting too much of them) when the environment is supportive to this. More specifically, I believe that individuals have a responsibility for their personal emissions [Almassi 2012; Banks 2013; Broome 2012; Caney 2005; Cripps 2011; Hickey 2017; Hiller 2011; Hourdequin 2011; Jamieson 2007; Kyllönnen, forthcoming; Murphy 2003; Singer 2009, 2010; Vanderheiden 2007], as well as for the instantiation of just global climate institutions [see Hickey 2017, elaborated in section 2.4.2].

2.4.3 What is needed to achieve a collective sustainable lifestyle?

To conclude this chapter, I will briefly reflect on the perceived gap between sustainable behaviour and our current behaviour. I will focus on citizens of developing countries, given that a change in behaviour on their part will have most impact. The IPCC report clearly stated that both anticipation and sustained action concerning mitigation and adaptation of climate change should occur. For this, the least that is needed is a change in behaviour of individuals. This likely requires a change in different (national and international) policies, a change in economic practice, and a change in lifestyle for many in the western world.

Often when a wide scale promotion of a certain behaviour or disposition is aimed at, a finger is quickly pointed towards education. Its believed transformative power and the ability reach all children independent of their socioeconomic background makes education uniquely equipped to pass on knowledge, skills and values to the next generation. This raises the question as to what is needed to achieve a more sustainable future. Though I do not mean to perceive education to be all transformative, I will assume (and defend in chapter four) that education can potentially have a significant impact in changing the lifestyle of adults-to-be, especially when this goes hand in hand with wider societal changes. Therefore, in this last section I will conclude with listing the cognitive and dispositional changes that seem necessary for changing the individual's current behaviour towards the sustainable alternative where needed. First, at least two initial *cognitive prerequisites* [P] for sustainable behaviour can be derived from the literature discussed in the previous sections.

[P1] Having sufficient knowledge and skills to choose sustainable alternatives when available, or to refrain from engaging in unsustainable behaviour when this is unjustifiably pollutive.

Providing children with this knowledge and these skills is a rather uncontroversial responsibility of education. The following *cognitive changes* are more demanding, and therefore more controversial:

[P2] Engaging in hard cognitive thinking about one's current lifestyle, even if this raises an uncomfortable feeling.

This should prevent over-enthusiastic thinking when one comes across scientific uncertainty surrounding climate change, and it should show that merely changing one aspect of one's current lifestyle is not sufficient to adequately combat climate change. And:

[P3] Understanding unsustainable behaviour, even simple daily acts such as eating meat or driving one's car, as intentionally contributing to the problem of climate change.

Though these latter two changes seem merely cognitive at first, the *affective system is a necessary component in this*. Individuals should be willing to engage in critical reflection on one's current lifestyle. This disposition required for P1. Also, understanding contributing to climate change as an intentional act (with many negative effects) may impact the moral intuition of people—individuals may start understanding someone's contribution to climate change (in an excessive way, when greener alternatives are available) as morally wrong. This means that flying for a short holiday or eating an excessive amount of meat—ordinary acts currently often understood to be in the amoral realm—will be understood as matters excessively contributing to a severe problem, placing the acts in the realm of morality. In other words, understanding unsustainable behaviour as intentional opens doors to reflecting upon the moral demands of sustainability more thoroughly.

On top of this, following from the literature summarised in the previous sections, there are further *changes in dispositions* of people that are needed, such as:

[P4] Having the tendency to engage sufficiently with the global poor and future generations.

When individual goodness is called upon when talking about climate change—e.g. the importance of happiness, individual rights or the national culture—then this should also be understood to extend to those spatially and temporally distant. This can be on grounds of fairness or harm, sparking the moral intuitions of the more left minded, or where possible through a moral foundation e.g. focusing on the importance of the ingroup (to prevent or minimise political polarisation), including the moral values of more conservative minded.

One may argue that combating climate change is a responsibility of governments, not of individuals, as this would be too demanding and likely insufficiently effective. Our political system is created in such a way that citizens should be able to trust their representatives with global and intergenerational problems. However, as governments are currently not taking this responsibility, have not done so the past decades, and are not likely to take adequate and sustained climate action in the near future, I argue that this responsibility turns back to individual citizens. But given the immense scale of the problem, it is impossible for individuals to adequately take action themselves. Collective action is needed, and for this two further changes in the *disposition* of the general population is needed:

> **[P5]** A positive disposition towards international cooperation when combating climate change, or even actively motivating political agents to engage in this.
>
> **[P6]** A positive disposition towards states taking substantive steps towards greater sustainability, or even actively motivating political agents to engage in this.

2.5 Conclusion

I have concluded this chapter by listing several cognitive and dispositional changes that seem necessary to realise a wide scale change towards sustainable behaviour. When taking these prerequisites together, it is clear that these are very demanding, and some even rather controversial. Instead of some small changes for the individual, they embody a change in orientation towards different values: away from primarily pursuing individual aspirations, and towards taking collective needs (of the future) into account. Also, it moves away from understanding mainstream daily acts as amoral, and towards reflecting upon the moral demands of sustainability. Throughout the chapter I have emphasised the importance of engaging the affective system of individuals, as the cognitive system seems insufficiently capable of motivating individuals towards sustainable behaviour. Even though I have tried to keep the working definition of 'sustainability' as uncontroversial and minimal as possible (as well as the prerequisites for sustainable behaviour following from this), it is not uncontroversial to pass on this view of sustainability to children via education. Therefore, in the following chapter I will discuss whether promoting sustainability (or discouraging unsustainability), and the corresponding necessities, can be considered a responsibility of formal schools. In chapter four I will consider whether it is permissible for liberal democratic states to enforce schools to engage in education for sustainability.

Chapter 3

Responsibility of education

The previous chapter gave an insight in the urgency, seriousness and complexity of global environmental problems that we currently face. Moral psychological research shows that merely knowledge transmission about these problems do not motivate people to action, and can even polarise groups of politically engaged people, as they will interpret the facts in light of their previously held beliefs. The chapter ended with a list of cognitive and dispositional changes of individuals needed for adequate collective climate action.

In this chapter the question is raised whether promoting sustainability could be a responsibility of schools. I will argue that formal educational institutions, i.e. all institutions where classroom based teaching occurs (with a focus on primary and secondary schools), do have a responsibility to take part in the promotion of sustainable behaviour and worldviews, and to discourage unsustainable ones.

In discussing schools' possible responsibility, I will only briefly touch upon *how* schools could promote sustainability. I will discuss methods insofar as they can be backed up with psychological insights discussed in the previous chapter, concerning effectively motivating individuals. I understand the how-question to be very important as obviously not all means justify the end, but only after it has been discussed whether there is a responsibility for schools in the first place, which is therefore the topic of this chapter.

To discuss whether the promotion of sustainability could be the responsibility of schools, I will first argue from a Deweyan perspective how schools should aim to develop both the individual as well as the collective (section 3.1). By clarifying the aims of formal education, I will show that promoting sustainability should be considered part of schools' aim to develop the collective. Unfortunately, very often there is a tension between the development of the individual and sustainability for the collective. In section 3.2 I will argue that under certain circumstances the development of the collective should find precedence over the development of the individual, and in section 3.3 I will show that these circumstances are met in the case of education for sustainability, concluding that the promotion of sustainability is a responsibility of schools.

3.1   Education develops both individual and collective

A common sense conception about the purpose or aim of education is that is should make children ready for (working in a) society. The idea of embedding children, through education, into the existing social order already started in Plato's *Republic*. Currently this is mainly perceived in (global) economic terms, focusing on competition and survival of the national economy on the global market [Biesta 2010]. Next to this, the Western philosophical tradition has focused strongly on fostering reason and rationality as a fundamental educational aim [Curren 2000; Scheffler 1973/1989; Siegel 1988, 1997]. Trying to counter this tradition, there is an increasing emphasis in current literature on promoting individual flourishing and personal autonomy as a fundamental aim of education.

3.1.1   Two aims of education: promoting flourishing and autonomy

In current philosophical literature on education, one can notice two trends concerning the aims of education. First, there is a strong revival Aristotelian flourishing, either by using the neo-Aristotelian eudaimonism in education [Curren 2010; Kristjánsson 2007; 2015; Sanderse 2012], or even by plainly arguing that individual flourishing should be the overall aim of education [see e.g. Brighouse 2006; White 2011; de Ruyter 2004; 2015]. For example, Brighouse argues that the "central purpose of education is to promote human flourishing" [2006, 42]. He argues that we should focus more on the potential of individuals, instead of letting them fit into the current economy. For this it is both essential that individuals live a life that is (objectively) good, and that this is lived from the insight [Brighouse 2006].

A second often named aim of education is the promotion of personal autonomy [see e.g. Brighouse 2006; Callan 1997; 2000; Gutmann 1995; 1999; Levinson 1999; White 1990; MacMullen 2007; Feinberg 2004], as most famously argued for by Kant. Traditionally education's purpose was believed to be freeing people from dogma and the authority of others, being the state, the church or other people. Next to this, one can also be freed from the passions, or, following Plato, those things lower than reason. Education should provide children with the (reasoning) skills needed for breaking free out of e.g. parental expectations or religious dogmas. Both White and Brighouse believe the promotion of autonomy to be central to the individual's ability to flourish, and therefore argue that, as White puts it, "all children must be protected against true believers who wish to impose on them a non-autonomous conception of the good life" [White 1990, 105].

One may wonder how environmental education relates to these aims of education. I believe this to be for two reasons. On the one hand, environmental stability can be seen as prerequisite for flourishing and autonomy, as environmental problems e.g. pose a threat to human health, enhance premature deaths, and diminishes financial security of many. Indirectly it could possibly even influence the stability of our government or education, for example through frictions resulting from large

scale climate migration. On the other hand, when justifying climate action (and the promotion of this in schools) we should be careful not to impose a non-autonomous conception of the good life. For example, it is impermissible to promote compulsory education for sustainability on deep ecology grounds. Therefore, self-determination or autonomy should be taken into account when discussing (compulsory) education for sustainability.

3.1.2 Collective aims of education

Though both the promotion of human flourishing and personal autonomy focus mainly on the development of individuals as an aim of education, there are also good reasons to believe that a central purpose of education is the development (or at least, the continuation) of the collective. This idea starts with John Dewey's [1916] realisation that societies can only exists through the process of transmission from one generation to the next. Newborns are immature and unaware of our society, and merely growing older will not be sufficient for society's continuity. Society's customs, institutions, beliefs and values need to be effectively transmitted to the next generations. Dewey mainly focuses on the importance of transmitting a democratic disposition through education, so children will live on to be adults voluntarily engaging with democratic processes.

This conception criticises both conceptions of education that were named at the beginning of this section. On the one hand, education is not merely a preparation for a job (or follow-up education), as this would be too narrow, taking unfair advantage of the needs and possibilities of children. On the other hand, education can also not be perceived as merely the training of the faculties of the mind, as is sometimes done when focusing on fostering reason and rationality in children. This is, again, too narrow, as important skills such as taking initiative, being inventive, and adapting to new situations will fail to develop.

Dewey argues that education is uniquely equipped to transmit knowledge, skills, values and dispositions to the next generation. Schools are able to assimilate our complex society. While doing so, it can eliminate features that are unworthy for transmission to the next generation, and only pass on practices and values that will improve the future. Next to this, it can offer an environment where (e.g. social, cultural, economic) backgrounds of children do not matter, and where all children get an equal opportunity. On top of this, it can create a wider, more balanced, and more multicultural environment compared to the child's home or after school situation.

Gert Biesta [2010], reviving Dewey's thought, specifies this insight by making the aims of education more explicit through formulating three domains that education should adhere to. In each domain there is a tension between connecting children to the current standard, and 'letting go'; between engagement and emancipation. The first aim of education is qualification: providing children with the knowledge, skills, understanding, judgements, and dispositions that allows them to do something—it

qualifies them. This can vary from a specific job to more general life skills. However, schools should not merely focus on qualification (i.e. knowledge transmission) as is often done, but a balance should be found with the other two domains. The second aim or domain is that of socialisation, focused on the "reproduction of the existing socio-political order and thus on the adjustment of individuals to the existing order" [Biesta 2011, 2]. Here one can clearly see Dewey's insight of using education for the continuation of society's norms, values and institutions. The third aim is that of subjectification, having to do with the formation of the person into being e.g. responsible, a grown-up or compassionate. This includes an "orientation towards the promotion of political agency and democratic subjectivity, highlighting that democratic citizenship is not simply an existing identity that individuals just need to adopt, but is an ongoing process that is fundamentally open towards the future." [idem.].

It becomes very clear that, next to developing the individual, there is a clear focus on transmitting content. Biesta criticises the current trend of what he calls the 'learnification of education': we should not focus on learning *an sich*, but we should learn *something*, for a specific reason, from someone. The basics of education are often perceived in (global) economic terms, focusing on competition and survival. However, there is a need to include democracy, ecology and care as the basics of society (and therefore education). This means that we should not 'develop the full potential of each child' as is often said, but that we should *interrupt* her development to raise questions and examine this: Is what the child desires indeed desirable for herself, and for life with others on this planet? This question clearly combines both the need for education to develop the individual students, as well as the need to take the collective into account.

Brighouse [2006, 13ff.] formulates next to the promotion of self-government (i.e. autonomy) and flourishing two other aims of education. On the one hand, education should promote economic participation. This is because people need an income to flourish, and because work is a sizable part of our lives, but also because people need a sense that they are responsible for their own income and wellbeing, as well as a sense of self-reliance [idem., 29]. On the other hand, more importantly, education should aim at creating citizens. For Brighouse this has three components. Education should promote (a) the disposition to abide by the law. This is overridable, as it can sometimes be justified to break the law in the pursuit of justice. Also, education should promote (b) the disposition to engage in political participation through legal channels, and (c) the "disposition to engage in political participation in the spirit of respect and a willingness to engage in public reasoning" [idem., 67]. This last component is definitely more demanding, and partly because of that more controversial. Brighouse's reason for wanting children to become active citizens is not because the child herself will benefit from this, as she may or may not do so, but because her fellow citizens definitely will benefit from this, e.g. because there will be less crime.

Concluding, one of the aims of education, next to the development of her individual students, is to support the development of at least continuation of society. For this, certain content needs to be transmitted from one generation to the next. This can be in the form of factual knowledge transmission, but also of the promotion of certain skills, dispositions or values. In all cases a balance should be found between passing on features of the current situation—including the status quo—and enriching this through emancipation. Both are important because the individual needs them to be able to thrive or flourish individually, and the collective needs them to for its continuation, which indirectly is beneficial for the individual as well. Following from this, two questions arise. First, what should we do when there is a tension between the collective aim of education and the individual's wish for personal development? Or more precisely, are there any conditions, and if so which, under which the development of the collective can take precedence over the development of an individual student? When promoting democratic or economic participation the development, flourishing or autonomy of an individual may only very rarely or to a small extent clash with the development of the collective. However, in the case of education for sustainability this will very often be the case, making acting for the collective far more demanding.

3.2 Tensions between development of the individual and the collective

Unfortunately, in many cases developing a sustainable environment for the collective has costs for the development of the individual. For example, traveling to exoting countries is great for personal development or relaxation, and traveling to many annual conferences all over the world seems necessary for an academic career, but the convenience of flying brings high GHG emissions. And while the possession of new technological devices is again convenient and exciting for the individual, the production process has high environmental costs. The same goes for smaller examples such as eating meat, buying new clothes or other products, and so on—-in most cases there is a trade off between the individual's convenience (or even development or thriving) and the consequences for the environment.

This raises the question under what circumstances, if ever, schools can promote something when this is at the cost of the individual's convenience or development. The more liberal minded may answer that education can never legitimately pass on content that is not beneficial for the individual student. Schools, they may argue, may merely be involved with transmitting the boundary conditions of a (sustainable) society (but not actively form sustainable citizens as I propose with education for sustainability). For example, schools could nurture critical thinking skills or transmit adequate knowledge about climate change (that may result in an individual reasoning herself that she should participate in climate action). One could call this *amoral* education as no specific (controversial, non-status quo) content is transmitted

to the new generation, but merely the skills and knowledge that will enable individuals to make their own choice. This way, the choice to e.g. engage in climate action will lay with the individuals themselves, and therefore education will not promote content that conflicts with individuals' development.

Though this kind of amoral education seems attractive from a liberal point of view, knowledge transmission seems insufficient to solve many of the more complex, ingrained and international problems we currently face—be it social, political or environmental. As seen in chapter 2, it is appealing to the affective system that will motivate actors to change their behaviour and worldviews, not factual knowledge. On top of this, it may be the case that something currently seen as controversial and conflicting with the status quo could actually be the key to societal moral progress. An example is the toleration and acceptance of gay marriage in the past, and possibly the legalisation of polyamorous marriages in the future.

One could reply that appealing to the emotions or transmitting controversial content—even if likely to morally improve the current standard—is not permissible in education, at least until it has been accepted by the larger public (at which moment factual knowledge transmission of by then non-controversial facts is permissible). However, given that education is an important route to wider societal change I argue that it is permissible to use it for exactly this reason. Nevertheless, it is not permissible to transmit just any (controversial, non-status quo) content to the new generation. In the remaining of this section I will specify under which conditions I believe divergence from education about sustainability (i.e. without explicitly focusing on values and dispositions) is permissible, and even desirable. I will spell out the necessary and together sufficient conditions [C] for promoting certain content c in education, even when this occasionally or structurally hinders individual development. When these conditions are met—and in section 3.3 I will argue that education for sustainability indeed meets these conditions—then the promotion of sustainability can be considered a responsibility of schools.

3.2.1 Conditions for privileging the collective over individual development

Firstly, following Dewey and Biesta, some matters should be explicitly communicated to the next generation in order to preserve society, that is, to preserve the ability of people to live together in a somewhat ordered community. Examples are a democratic disposition (following Dewey and Brighouse), or the belief that care, ecology and democracy are at the basis of a society (following Biesta). As the continuation of the society one lives in is beneficial for all, passing on e.g. a democratic disposition needs little justification. However, in some cases it is not the current status quo that is desirable to pass on, but an improved version of this where e.g. certain minorities are emancipated, or where certain (material) conditions necessary for a fruitful life are improved. As views on how to improve a society are often controversial, I will use a very minimal and more objective account for deciding what is legitimate to

pass on to the next generation. I will merely state that, when a certain measure is needed for the continuation of society, or to prevent individuals from infringing the basic capabilities (necessary for human flourishing) of others, that it is desirable to pass this on to children. For example, if it is unsure whether everyone will find out by themselves that HIV can be transmitted through unsafe sex, and if the transmittance of HIV greatly diminishes one's health which is a basic capability, then it is partly education's responsibility to transmit knowledge or dispositions about STDs such as HIV to the next generation. This means that certain content *c* can be considered a responsibility of schools:

> **[C1]** If *c* is needed for the continuation of society and/or to prevent children (when growing up) from infringing their own or others' basic human capabilities;

However, some of these matters can be argued to be responsibilities of the state, and not of individuals, and that it is therefore not a school's responsibility to pass this on. For example, it is legitimate for individuals to outsource taking care of national safety or the water level in national waters, and therefore individual worrying about this cannot be expected from everyone, placing it outside education's responsibility. This means that certain content *c* only needs to be passed on in schools:

> **[C2]** If it is an individual responsibility to engage in *c*;

Given that content deriving from C1 and C2 may still be slightly controversial, I will add two more conditions that will limit the responsibilities of education:

> **[C3]** If merely promoting boundary conditions for *c* has been proven to be insufficient;
> **[C4]** If the problem surrounding *c* is serious and urgent;

And given that implementing content in all schools ethe or curricula is a hassle, it needs to be promising that the promotion of *c* can be done effectively in a school setting. That is, it should aid substantially to the aim that one is trying to achieve, at least when hand in hand with the promotion of this outside of schools as well (as we should not be overly naive in trusting the magic transformative power of education). So the transmission of certain content can be considered the responsibility of formal educational institutions:

> **[C5]** If it is promising that the promotion of *c* can be done effectively through education;

Of course, not all methods are allowed when passing on something to children. Though I want to broaden the methods from merely factual knowledge transmission to include emotive appeals, certain clear limits should be set. This adds the sixth and last condition:

[C6] If *c* is not transmitted through coercion or indoctrination.

I take coercion to be the use of force in gaining compliance. This means that no force can be used when aiming at changing someone's beliefs or behaviour within education. I understand indoctrination to be all teaching aimed at changing someone's beliefs towards a certain matter independent of its (lack of) evidential support (or undue attention to its evidential support), or when the methods used make the child unwilling or unable to evaluate her belief in the matter independently. This means that *c* should have solid evidential support, and that children should be supported to critically evaluate their compliance to *c*. For example, religious education or warning students and parents for the 'dangers' of vaccination is therefore only permissible to the extent that proper attention is paid to the (lack of) evidential support for its claims, and when autonomous reflection on the matter is not demotivated (and preferably supported).

Last, I will limit myself to merely arguing that when all these conditions are met, it is both necessary and sufficient for understanding the transmittance of certain content to be a responsibility of *state funded* schools. As the freedom of education is a matter too delicate for the short length of this thesis, I will not go into whether the responsibilities deriving from this list also apply to private (i.e. independent, non-governmental, non-state funded) schools.

Concluding, in this section I have argued that under certain circumstances education should actively transmit content aiming at developing the collective, even when this is at the cost of developing the individual. There are two pitfalls when attempting to list conditions for making passing on certain content the responsibility of schools. On the one hand, it could be that my list is too broad. For example, providing knowledge about Lyme disease and ticks (and many other health related subjects), or how to responsibly spend your money (and many other skills one needs in life) could confirm to my list, making this a responsibility of schools. Including too many subjects neglects the responsibility of parents and other social institutions, and would overwork already busy teachers. I acknowledge this risk, but believe that the current list of conditions is not too broad—that is, I am willing to bite the bullet and agree that this health, lifestyle, democracy, economic, etc. related content is indeed part of what education should pass on to the next generation.

On the other hand, it could be the case that the conditions result in transmitting content that we intuitively believe should not be passed on through education. For example, nationalists may argue that refugees pose a serious and urgent threat to their society, and see it as their individual responsibility to protect their country from outsiders. If this were correct, teaching patriotism should be a responsibility of schools, even when this is at the cost of students' personal development. However, these and similar examples often do not meet the high demands of condition C1, as e.g. refugees do not pose an imminent threat to the access of basic needs of the national citizens, or to the continuation of their society *an sich* (but merely to the nationalists' desired version of society).

3.3 Meeting all the conditions

In this last section I will argue that education for sustainability is a responsibility of state funded formal educational institutions, by showing that this content checks all the boxes spelled out in the previous section (3.2.1).

In chapter 2 I have already showed why some of the conditions are met in the case of promoting sustainability. First, I have shown why climate change and related global environmental problems are both serious and urgent (see section 2.1), meeting condition C4. Second, I have shown how climate change poses great risks to at least the global poor's and future generations' access to basic capabilities. Especially when kept insufficiently mitigated, risks include diminished health, higher risk of premature death, and effects on infrastructure and food security due to extreme weather events. On the short run, this will likely not endanger the continuation of Western developed societies, but on the long term it may. Also, climate change's effects may be felt by (future generations of) the global poor within decades, posing a clear threat to their current society. Therefore, C1 is clearly met. Third, factual knowledge transmission (in combination with the development of critical thinking skills) seems to be insufficient to motivate individuals towards climate action. Therefore, promoting boundary conditions under which actors can themselves decide to take climate actions is insufficient, simply because these boundary conditions do not appeal to the emotions of individuals and therefore do not sufficiently motivate to action. This means that C3 is also met. Last, in section 2.4.2 I have argued that acting sustainably is an individual responsibility, meeting C2.

In the remaining of this chapter I will argue that it is promising that the promotion of sustainability at schools will have an influence on climate action taken in a society [C5], and that it is possible to promote sustainable behaviour and worldviews without coercing or indoctrinating children [C6].

3.3.1 Promoting sustainability in schools is promising

To argue that schools have a responsibility to promote sustainability, it needs to be very plausible (at the least) that schools can contribute to their students' ability to take this responsibility (during and/or after their time in school). It would be unfair to expect from teachers to change the content they teach, and from schools to invest resources in this, when the added attention to sustainability will not (significantly and/or on the long run) contribute to a more sustainable future.

As thorough longitudinal studies into the influence of teaching sustainability in schools on children's behaviour is missing, I will merely be able to give an account for likely effectiveness of this kind of education. Whether teaching about sustainability will have an impact depends on several factors such as the content that is taught, the method that used, and to what extent the content is in line with the behaviour and attitudes that children see around them at home or in their neighbourhood. In order for education to be effectively moving children towards sustainability, schools

should provide their students with the knowledge, skills, dispositions and values that will enable children, youth and adults to refrain from excessive unsustainable behaviour.

Two important notes should be made. First, the content that is taught is more likely to effectively socialise children when this is done in a pedagogical civil society, that is, in a network of teachers, parents and outside school activities characterised by reciprocity and trust between its members [De Winter 2013]. When the different primary social contexts of a child—most importantly within the family and in school—reflect the same values, the child is more likely to pick up on this [ibid.]. An active pedagogical civil society is correlated to healthier interpersonal relationships between children and more support of deliberative democratic processes [ibid.]. Though values concerning sustainability are not mentioned by this research, it is plausible that uniformity of family and school values has a positive impact on student's adaptation of sustainable values.[1]

Second, as seen above, the current method that is used when teaching about sustainability is insufficient. Merely teaching children the 'cold facts' of climate change and offering them skills enhancing their sustainable behaviour is unlikely to sufficiently motivate them towards the needed change towards a more sustainable lifestyle. A different, more holistic approach calling on the affective system of students is needed to create a positive attitude towards sustainable (slightly more demanding, less convenient and more effortful) behaviour (see section 2.3.4).

Whether this holistic approach supported by a strong pedagogical civil society is sufficient to have a significant positive influence on the extent of students' sustainable behaviour is an empirical question that I am not able to answer here. Though I do not mean to overestimate the transformative power of education, I do believe that I have supported the claim that it is at least very plausible that education is capable of changing students' attitudes and behaviour towards the sustainable alternative when conducting the right methods. In the last chapter of this thesis I will assume this, and continue with the philosophically more interesting question whether (assuming that it can be done effectively) education for sustainability should happen.

3.3.2   Legitimate methods for education for sustainability

To some education for sustainability, i.e. actively aiming at forming sustainable citizens through an holistic approach calling on the students' affective system, may seem awfully similar to manipulating or indoctrinating children into behaving more sustainable. And though sustainability may be important, promoting this can only

---

[1]An example of a school intervention is *De vreedzame school (The peaceful school)*, a holistic program for schools aimed at promoting democratic citizenship and social cohesion [see Pauw 2017]. Early research into the program show significant changes in the school climate, and an improvement of teacher's competence to discuss more difficult (political) content with students [Pauw 2013; 2017]. Children engaging with both *The peaceful school* and *The peaceful neighbourhood*—a similar program aimed at the level of the child's neighbourhood—score significantly higher on citizenship competences.

be permissible when the means justify the end. This means that, of course, coercing children into behaving sustainably is off the table. But indoctrinating children should also be prevented. As seen above, this means that the claims made should be backed up with evidence, this evidence should be presented, and children should be supported to evaluate this evidence and the claim following from this. As shown in section 2.1, the urgency and seriousness of climate change has sufficient scientific proof. When passing on knowledge and skills needed for sustainable behaviour this scientific background will likely be discussed, and children will be enabled to evaluate this evidence for themselves. However, other more ingrained and holistic approaches aiming at passing on (moral) values or dispositions may be less explicit on this front. Discussing methods of education for sustainability is not the main aim of thesis. In this section I merely aim to show that there are methods having the potential to aid effectively supporting student's sustainable behaviour, and that these methods can include the needed explicit evaluation differing them from manipulation or indoctrination. I will specify the use of role models and nudging, but of course other methods can be brought forwards as well.

First, teachers and other staff could function as role models, showing praiseworthy character traits [see Carr 1991; Sanderse 2012] promoting sustainability such as critically linking one's own actions to the environmental impact, or actively promoting international cooperation for climate action. Though students rarely see their teachers as role models [Bucher 1998; Yancy, Siegel and McDaniel 2002; Yancy et al. 2011], adults recall vivid memories of their teachers and realise their teacher's contribution to their development in retrospect [Timmerman 2009]. This may be because teachers often shy away from talking about their own norms and values explicitly, serving their modelling role merely non-verbally [Klaassen 2002]. However, most famously researched by Bandura [1963; 1986] a considerable amount of children's learning takes place through observing the behaviour, attitudes, values, and beliefs of others, and seeing the consequences of others' actions. "If role modelling is to contribute to children's moral education, teachers are recommended to explain why the modelled traits are morally significant and how pupils can acquire these qualities for themselves" [Sanderse 2012, 125]. This way, children can not only imitate the behaviour or attitudes of their role model, but also understand why their teacher acts or emotionally responds the way she does, therefore enabling the child to go their own way. This is especially important when the praiseworthiness of an act is not immediately clear by seeing it. For example, the purpose of picking up litter may not need an explanation, but the initiation of certain sustainable educational policy or a teacher refraining from flying for a holiday may do. This way, the current implicit influence of teachers as role models could be made more effective, and at the same time more transparent.

A second less transparent and more controversial method for promoting sustainable behaviour among students is by nudging them towards choosing the sustainable alternative. In the case of nudging, the physical environment of the student is

changed in a way that she is more likely to pick the sustainable alternative, taking her cognitive biases into account [see Sunstein 2014]. When conducting nudging, a more sustainable choice may be made at that very moment, but it is very questionable whether even continuous nudging can alter the lifestyle of the individual on the long run.

One may wonder whether the common objections of nudging are at all applicable in the case of children, as being paternalistic and slightly manipulative seems OK when raising children. However, Archer, Cawston and Engelen [2018] argue that these criticisms also apply to nudging children, and distinguish two kinds of nudging relevant in the context of children. What they call *compensatory* nudging seems legitimate, as here the nudging merely compensates for the lack of adult (reflective, patience) capacities of the child. The nudge helps the child to do the right thing, i.e. that which she would have chosen if she would have had the adult capacities. An example of this would be the use of nudging to guide a student's attention to making an active (sustainable) choice, rather than following her peers (as youth may be more inclined to do compared to adults). This way, Sunstein [2015] argues, nudging can be used to promote someone's autonomy rather than diminish it, as nudging is often charged with, for example by enabling people to devote their limited time and attention to their most important concerns.

Another kind of nudging, called *exploitative* nudging, is however illegitimate. Here benefit is reaped exactly *because* the child lacks adult capacities such as critical reflection. An example of this would be a teacher placing a picture of an hurt little lamb next to the meat lunch option, and a picture of happy cuddly lambs next to the vegetarian option, well knowing that children easily engage with the feelings of little animals. Here the nudge is used to deceive the child into making the more sustainable choice, where an adult may be able to evaluate eating vegetarian more thoroughly. Another reason for why nudging should be used only upon reflection has to do with the influence nudging may have on the moral development of children. As nudging focuses on external choice architecture and hinders the connection between the action and the perceived goal, presenting an explicit choice should, where possible, be privileged over nudging. Therefore, nudging may be an effective method preventing immediate unsustainable behaviour, and may even promote active decision making on matters concerning sustainability. This shows that it is indeed possible to promote sustainable behaviour of children without coercing or indoctrinating them.

3.4   Conclusion

In this chapter I have argued that education should both aim at developing the individual student, as well as society as a whole. When the development of the individual conflicts with the collective aims of education, such as often the case in education for sustainability, it is permissible to pass on collective values when (1) this is needed

for the continuation of society, or to prevent infringement of basic human capabilities; (2) they embody a responsibility all individuals have; (3) they are unlikely to be acquired by the individual herself; (4) the problem it is trying to prevent is both serious and urgent; (5) it is plausible that education is capable of influencing students' behaviour or worldview through this; and (6) an appropriate method is used. As these conditions are met in the case of education for sustainability, I conclude that the promotion of sustainability is a responsibility of all state funded schools.

Chapter 4

Compulsory education for sustainability

In the second chapter of this thesis I have shown how the urgency, seriousness and especially complexity of the problem of climate change asks for a change in our value system—towards concern for the collective and specifically future generations. To be able to effectively motivate people towards sustainable actions a different method is needed, calling the affective system of individuals. I called this education *for* sustainability, as an alternative to the commonly used education *about* sustainability where students are merely informed about climate science. "For" does not indicate indoctrination, as some argue, but rather a purpose—education is used as a means to effectively change people's behaviour and dispositions towards the sustainable alternative.

In chapter 3 I have discussed that educating for sustainability can indeed be considered a responsibility of formal education. Even when the high demands of education for sustainability clash with individual students' aspiration or personal development, it is permissible to precede the development of the collective. This raises a question: How should this responsibility of schools for the promotion of sustainability be manifested? In the preceding chapters I have briefly discussed different options, such as a change in the curriculum, a change in schools' ethe, or the use of teachers as environmentally conscious role models. Important for this is that sustainability is not merely added as an additional part of the curriculum, but is holistically engrained in schools' organisation and interaction with students. However, little knowledge of the daily practice of current primary and secondary schools is needed to understand that this call for change is extremely demanding. The proposed methods are invasive in the current school climate and organisation, and asks a lot from already overworked teachers and other staff members. It is therefore not surprising that most schools are currently not conforming to the high demands of education for sustainability. Waiting for schools to include education for sustainability voluntarily is likely to take time, and it is questionable whether all schools will take the needed steps.

Instead of spending more attention to *how* schools could practice education for

sustainability effectively, I will now turn to a philosophically more interesting question: *Is it permissible for states to make education for sustainability compulsory for all state funded schools?* Simple reasoning following from the previous chapters may argue that it is: the problem of climate change is serious and urgent; promoting sustainability is a responsibility of schools; schools currently do not take this responsibility; and education for sustainability has great potential to be an effective means towards a more sustainable lifestyle, especially when parallelled with wider societal changes.

However, compulsory environmental education is questioned by many. Bob Jickling [1992], in his paper "Why I don't want my children to be education for sustainable development", has two concerns. Even though I do not talk about education for sustainable *development* but merely for sustainability (as explained in section 2.4), I do believe the same criticisms object to my position. First, Jickling argues that there is lack of attention to philosophical analysis of the concepts central to environmental education. On top of this, and of course partly because of this, many questionable ideas are being promoted under the name education for sustainable development. A clear aim is needed when you want to education someone *for* something, and this is currently not available. Second, Jickling argues that education *for* sustainable development, or *for* deep ecology, or "for" anything is inconsistent with our *a priori* conception of education. "Education is concerned with enabling people to think for themselves." However, Jickling argues, in the case of education *for* something,

> a pre-determined mode of thinking [is suggested] to which the pupil is expected to prescribe. Clearly, I would not want my children to be taught sustainable development. The very idea is contrary to the spirit of education. I would rather have my children *educated* than *conditioned* [...] I would also like them to know that sustainable development is being criticized, and I want them to be able to evaluate that criticism and participate in it if they perceive a need. I want them to realize that there is a debate going on between a variety of stances, between adherents of an ecocentric worldview and those who adhere to an anthropocentric worldview. I want my children to be able to participate intelligently in that debate. [Jickling 1992, 8, emphasis added]

In the remaining of this chapter I will defend compulsory education for sustainability from these criticisms. Specifically, I aim to clarify the expectations of education for sustainability, to show how this form of education can promote a non-controversial conception of sustainability, and show how the proposed education for sustainability is compatible with Jickling's wish for his children to be trained to critically examine sustainability. In doing so I will pursue non-ideal philosophy. Rather than attempting at a full conceptual analysis of (education for) sustainability, or thoroughly engaging in specific theoretical normative debates concerning e.g.

our obligations towards future generations, I focus on providing an analysis relevant for educational practice. In this, I will take into account the imperfect situation surrounding education for sustainability, such teachers' busy schedule, climate change's urgency, and individuals' (implicit) biases and conflicting priorities.

4.1 Questionable ideas in education for sustainability

"Sustainability," "sustainable development" and education for this can refer to many things. Dobson [2003] has even counted that there are over three hundred available definitions of these concepts—and this was fifteen years ago. In this section I will discuss some different interpretations of sustainability and sustainable development, show why these are contestable and why this is problematic, and offer a pathway towards a conception of sustainability no one can reasonably reject.

4.1.1 Questionable ideas

Over the past decades, many reasons have been given to justify the need for sustainable behaviour. For example, some argue in favour of biospherical egalitarianism, starting from the belief that nature has an intrinsic value that should be protected [e.g. Kopnina 2012; Traina and Darley-Hill 1995]. Among these group are deep ecologists, emphasising the intrinsic value of non-human nature and ecosystems, for example arguing a (pre-industrial) lifestyle where a closer relationship to nature is nurtured. Especially the tension between sustainability and the often assumed need for development is believed to be a universal dilemma [e.g. Laessoe and Öhman 2010; Lewis 2005; Mosse 2005; Oliver-Smith 2010].

Preserving nature for its intrinsic value is a minority position, with on the other side of the spectrum anthropocentric reasons for preserving nature. Here, nature has merely instrumental value, and is needed to supply humans' needs for e.g. natural resources, fertile soil for food production, or recreation. The anthropocentric position often goes together with conservative reform proposals for sustainability, often maintaining the status quo rather than transforming the economic and political order [Stevenson 2007].[1]

In chapter 2 I proposed a working definition of sustainability: "Something that is sustainable—be it behaviour, a worldview, an ideology, a policy or something else—meets the needs of the present without compromising the ability to meet those of the future." In this definition the justification for why we should account for the needs of present and future generations, the exact aim of this, and how this translates to individual responsibilities is left unknown. Of course, this can be based on many controversial grounds, as well as very reasonable ones. In the coming section I will

---

[1]For example, some argue in favour of 'quick technical fixes' for environmental problems, believing that scientific and technological expertise can provide a base for protecting human needs without the need for social or economical changes [O'Riordian 1981]. This view is largely unaccepted by climate scientists nowadays, given that mitigation is believed to be a fundamental part of even the most promising proposals for geoengineering.

analyse why it is problematic to ground the base of education for sustainability on controversial grounds.

4.1.2   Why promoting a contestable view is problematic

I believe grounding a concept of sustainability on questionable grounds is problematic for two reasons, one practical and one more theoretical. First, a controversial justification for the need for sustainable behaviour will not help with motivating citizens. In practice, a convincing—that is, non controversial—justification is more likely to be an effective motivator for greater sustainability. Second, basing *compulsory* education for sustainability on controversial grounds may be considered illegitimate. Following Rawls' *Political Liberalism*, in a liberal democratic state limiting the freedom of citizens is only permissible when this is not done by some comprehensive doctrine, but through a framework that ensures state or liberal neutrality [Rawls 1993; see also Dobson 2003; Schinkel 2009]. Demanding neutrality of the state does not include neutral procedures for Rawls, as the state's procedures are clearly aimed at finding common ground between people from different doctrines. Instead, it should be neutral in the aims it promotes. The basic institutions of a state and public policy should not favour or promote any particular comprehensive doctrine and the conception of the good life associated with it, or assist those who pursue it [Rawls 1993, 192]. This "means that those institutions and policies are neutral in the sense that they can be endorsed by citizens generally as within the scope of a public political conception" [idem.]. One question easily follows from this: How can a government committed to being neutral when it comes to conceptions of the good life endorse or even prescribe education for sustainability?

4.1.3   A path towards a neutral conception of sustainability

According to Anders Schinkel [2009] education for sustainability has three characteristics that make it controversial from the viewpoint of liberal neutrality. First, it "embodies strong transformative ambitions," [Schinkel 2009, 512] meaning that it is not merely aiming at passing on knowledge or raising awareness, but at endowing a set of values and dispositions hoping to reform society. Following Rawls, insofar this is a comprehensive doctrine, it directly conflicts with liberal neutrality. However, Schinkel rightly notes that whether the view is *comprehensive* is irrelevant—only views that are subject to overlapping consensus (i.e. that are not based on a controversial view pertaining the good) can legitimately be promoted. This means that promoting sustainability is only permissible, when no one can reasonably reject this, i.e. pertaining no controversial views concerning the good..

Second, Schinkel argues, education for sustainability is centred around the concept of 'sustainability' or even 'sustainable development', and these concepts themselves are respectively vague and controversial. As said above, the concept of sustainable development is problematic as it assumes the need for the development of

human aspirations, even when this is at the cost of non-human nature [Biesacker et al. 2014; Bonnett 2003; Gottschlich and Bellina 2017] or the needs of future generations. A fair balance should be achieved between the wishes and aspirations of the current generation and the basic needs of future generations, and it is argued that this is currently too much in favour of the current generation [e.g. Gardiner 2011]. Therefore, the concept of 'sustainable development' is inherently controversial, and centring compulsory education around this would be conflicting with liberal neutrality.

The concept of sustainability is vague, as it often remains unclear what needs to be sustained. The absence of a clear conception leads to many promoting questionable ideas under the name 'sustainability'. Therefore, 'sustainability' needs to be sufficiently specific and non-questionably conceptualised if it were to be the center of education for sustaiability.

Third, education for sustainability is based on "uncertain or controversial 'factual' knowledge and contestable views of nature" [Schinkel 2009, 512]. This claim is threefold. First, Schinkel mentions that education for sustainability is based on *uncertain factual knowledge.* If climate science were indeed uncertain, demanding climate action would be questionable, given the lack of supporting evidence showing the need for this. However, the climate science presented in chapter 2 is very solid. Given this thesis is written over ten years after Schinkel's article in 2007, his worries are largely answered by progress made in climate science. Currently the high certainty of empirical data show the urgency of climate action, and the potentiality of high risks when action is neglected. The certainty of the expressions used in IPCC reports such as "likely" or "extremely likely" are often underestimated [Bodescu 2009], but this does not mean that many claims in these reports should not be seen as solid predictions. Some details about the magnitude or dispersion of the effects of climate change are uncertain, but even without this information one can have a grounded motivation for the pursuit of sustainability.

Second, Schinkel mentions that education for sustainability is based on *controversial factual knowledge.* Indeed, the epistemic nature of the climate debate got complicated in recent years. Even basic climate science—factual knowledge—is promoted as controversial, resulting in less overlapping consensus on matters surrounding the pursuit of sustainability. I cannot do justice to this complex epistemic debate, but for the purpose of this paper I will assume that reasonable agents do not contest the nature of basic climate science, and that therefore this factual knowledge is subject of overlapping consensus. (One can of course contest the desirable ways of pursuing sustainability—one can choose to fly or not to be a vegetarian on reasonable grounds—and therefore making specific climate action compulsory is controversial and not subject to consensus.) Therefore, I believe that education for sustainability is neither motivated by uncertain science, nor by controversial 'factual' knowledge.

Third, Schinkel mentions that sustainability is based on *contestable views of nature.* He does not clearly elaborate on this, but it could refer to the fact that sustainability is

predominantly anthropocentrically interpreted. In this case, the justification brought forward for acting sustainably is to sustain a quality of life for human beings, and concern for non-human nature is a often merely a by-product. This means that, when answering the question what should be sustained, a very different answer can be given depending on whether nature has merely instrumental or also inherent value. Do we need to preserve land untouched by humans, large biodiversity, or merely those aspects of non-human nature beneficial for human consumption? As anthropocentrism is a specific and contestable conception of the good, liberal neutrality asks for education of sustainability to not implicitly or explicitly favour anthropocentrism over non-anthropocentrism [Schinkel 2009, 515].

In the next section I will address these worries by defining a conception of sustainability that is on the one hand precise enough to guide action in the educational context, and on the other hand is non-controversial. That is, I will formulate a minimal account that no reasonable agent could reject, e.g. avoiding justifying it on a specific contested view of nature, or making the account overly demanding for individuals. Again, I aim at forming a definition that is *useful* in the educational context, i.e. that can guide educators and educational policy makers in their reform practices. In doing so, I will engage in something that has been called ameliorative analysis [Haslanger 2012; see also Jenkins 2016; Dutilh Novaes 2018]. Starting from how a certain concept is currently used, a revision of the concept is aimed at, describing how it *should* be used. This constructionist account therefore does not aim at analysing ordinary discourse, either conceptionally or descriptively. It starts from asking, what is the point of having the concept in question—in our case, sustainability—in the first place? What function does it have in our practices and discourse? This means that an ameliorative inquiry requires normative input. I assume that we need the concept of sustainability to distinguish between behaviour and dispositions that are fairly weighing the needs of the current generation with those of future generations, and those that are not, the latter being unsustainable. I will assume that there is a need for sustainable behaviour (as defended in chapter **??**), and that education could play a role in promoting this (defended in chapter 2). Therefore, I aim at defining a conception of sustainability that could both effectively promote sustainable behaviour, and is justified to use in compulsory education for sustainability (as e.g. it is non-controversial and not conflicting with state neutrality).

4.2   Redefining sustainability

The debate surrounding sustainability often becomes more heated when specifying its temporal and spatial limitations. Do we need to ensure adequate resources for our (grand)children only, or also for more distant future generations? This often depends on why we want to behave sustainably in the first place—why shouldn't we ruin this earth? Is this because of certain obligations towards our compatriots,

to all human beings, to all future human beings, or also to non-human nature? The demands of sustainability vary greatly depending on this answer. Next to this, the demands of sustainability on the individual also vary greatly depending on how the overall aim of a sustainable future translates to individual agents. Given that an individual's actions can only minimally negatively impact others' ability to basic living conditions, and given individuals' minimal ability to have a significant positive impact on a sustainable future, it would be unreasonably demanding to expect a lot from a single agent. On these three fronts—the aim of sustainability, the justification for sustainability, and the translation to individual responsibilities—very controversial as well as very reasonable claims can be made. I aim at offering a sufficiently substantive account of sustainability on these three fronts—one that no one can reasonably reject.

4.2.1 The justification: Why should we behave sustainably?

As shown in chapter 2, climate science predicts very negative effects of climate change when no sufficient mitigation and adaptation measures are taken. The underlying question of why we should behave sustainably is why we should minimise the risk of climate change. Many justifications for this stand on controversial grounds, such as an assumption that non-human nature is inherently valuable and should therefore be protected [e.g. Hailwood 2005]. In general, obligations to act sustainably are justified through moral matters: we have a responsibility towards the global poor, future generations and/or non-human nature to sustain (parts of) the earth. Though this may still be seen as controversial, framing it differently will solve this problem. While reasonable people may believe that they individually do not have substantial obligations to help e.g. future generations, it is hard to reasonably deny that everyone has a responsibility not to impair e.g. future generations of a basic living standard. And as unmitigated climate change poses a great risk to this in terms of e.g. diminished food security or higher health risks, a justification for acting sustainably follows.

In other words, no one is intentionally aiming at destroying the earth. This already makes sustaining the earth in general a reasonable position to hold, and subject of overlapping consensus. Many different justifications can be given for *why* we should sustain the earth. Some of them seem controversial, some less. However, when *many* of these are presented in schools as reasons for behaving sustainably, no comprehensive doctrine or specific conception of the good is favoured, and still acting sustainably is justified. As Schinkel [2009] argues, we should draw on resources of various traditions when justifying and motivating climate action. Many may be in favour of mitigation, all for their own reason. Bringing those reasons together and presenting them as possible justifications offers reasons for why we should behave sustainably, without promoting a specific doctrine. To avoid the polarising effect of climate education discussed in chapter 2, we should ensure that justifications for climate action do not merely draw on moral premises the political left and progressive

would easily agree to. Also justifications motivating the more conservative minded should be provided.

Providing children with various justifications and motivations to behave sustainably, and making sure that common views are not omitted, may meet the demands of complying with state neutrality (or is even required for state neutrality, as Dobson [2003] argues). However, one could argue that this premise of enabling children to make up their own mind on why they should be motivated to behave sustainably is inherently contradicting with educating them *for* something [Schinkel 2009, in response to Dobson]. However, leaving room for one's own reasons for *why* one should behave sustainably is compatible with giving clear directions for *what* sustainability tries to protect. As 'for' in 'education for sustainability' points towards having a clear purpose or aim—and this clear aim is provided in the next section—including different traditions to justify this is compatible with state neutrality as well as education for sustainability.

4.2.2   The aim: What do we want to achieve when acting sustainably?

Though sustaining the earth in general—following from a variety of justifications—may be a reasonable position to hold, it is still immensely vague. What exactly should be achieved when pursuing sustainability? An often named controversial aim is that of sustainable development, where the aim is to sustain a world in which both the needs and aspirations of the present are preserved, without compromising the ability of future generations to meet their needs and aspirations as well [WCED 1987, 39]. However, assuming the right of the current generation to pursue their aspirations when this necessarily has costs for non-human nature and future generations is controversial. Too much is aimed at (often ('unfairly') in favour of current (wealthy) generations), given the scarcity of resources and resulting trade offs. However, it may be possible to form a very *minimal* account of what should be sustained (and for whom), that no one can reasonably reject. Such an aim could be that *acting sustainably means protecting at least the fulfilment of basic needs of all currently existing people, and all close future generations.*

This proposition is often contested on one of the following two grounds. First, many people believe that one does not have an individual responsibility to take the needs of all people (including the global poor, people outside one's national borders, people of all ethnic/religious/economic backgrounds, and future generations) into account. See section 2.4.1 for why I believe allowing oneself to harm other people is not a position one can reasonably hold.

Second, this minimal account is anthropocentric—all climate action is justified through individual responsibilities towards human welfare, and currently all responsibilities towards non-human nature are merely a by-product of this. As anthropocentrism is a specific doctrine pursuing a specific conception of the good, one could argue that assuming this is conflicting with liberal neutrality (see section 4.1.3). However, non-anthropocentric views justifying sustainability would not reasonably

deny this minimal account. They would *add* additional responsibilities, but not *oppose* the mentioned ones. For example, anthropocentrism may argue in favour of protecting bees because of their use for human food production. Deep ecologists also want to protect bees, but for different reasons. Therefore obligations following from my anthropocentric account will not be countered by deep ecologists or other non-anthropocentrists—they would merely complement it. Those arguing from an ecocentric point of view will not reasonably reject that the needs of current and future generations should be protected, but merely that this is not *all* one should aim for—indeed, it should be balanced with the 'needs' of non-human nature. As I am looking for an account of sustainability that no one can reasonably deny—and I do believe that one can reasonably reject biospheric egalitarianism—I will merely include anthropocentric aims in this account. Hence, what should *at least* be sustained is sufficient resources and other necessary elements for near future generations to fulfill their basic needs.[2]

From this conclusion an empirical question follows: How much mitigation and adaptation is needed to ensure that future generations will have sufficient resources—broadly interpreted—to accommodate for their basic needs? The answer to this links GHG emissions to the possible absorption capacity of the atmosphere. If it turns out that emissions should be drastically diminished, and that this can only be achieved by collectively e.g. flying far less or eating far less meat, then guidelines for action are available.

One last question remains: How much risk can we take? Can we, for example, hope for a technological fix in the future that will drastically diminish the effects of climate change? If this were the case, we could continue life as usual without having a detrimental impact on the basic needs of future generations. This may have been a reasonable position to hold decades ago, but not under the current conditions. First, climate science—with increased certainty compared to ten years ago—shows clearly that mitigation is needed to stay within the believed safe space of two degrees global warming. Second, most 'promising' proposals for geoengineering still need substantive mitigation in order to be considered 'safe' in the long term. Third, even the most promising proposals are far underdeveloped, leaving uncertainties both on its safety for humans and non-human nature. Fourth, even if the technological fix is ready and regarded safe in itself, questions can be asked about the impact on the global political order. For these reasons, I believe that postponing mitigation, e.g. through geoengineering, is not a position that one can reasonably hold.

---

[2]One may raise the following epistemic question: How do we know what the basic needs of future generations will be? As we do not have a clear reason to believe otherwise, it seems sufficient to believe that the basic needs of future generations will be roughly similar to those of current generations, including e.g. the need for minimal nutritions and food security, access to clean air and drinking water, etc. Examples of more specific attempts to describe the fundamental needs of humans are Nussbaum's [1992] list of basic capabilities, or a smaller and more foundational list of human right.

4.2.3   Translating to individual responsibilities: What should I do?

Following the above, sustainability asks *at least* for leaving sufficient resources—broadly speaking—and other elements for the current generation and the near future generations to fulfil their basic needs. This hard purpose can be accompanied with a variety of justifications from a broad range of traditions, assuming no one would reasonably reject this claim. Following from this aim, as shown in chapter 2, both immediate mitigation and adaptation and international cooperation is needed to achieve staying in a climate where the global poor and future generations are not exposed to the destructive effects of unmitigated climate change.

However, one may argue, there are many good causes to which individuals and schools should devote their attention. Expecting individuals to pay attention to all causes in need of problem solving would be too demanding. To what extent should individuals devote attention to sustainability?

To answer this question, I will turn to Scanlon's [1998] contractualism. Here wrongness is conceived to be behaviour that is unjustifiable towards others. Given that all humans have equal moral status, contractualism entails that one can only pursue those interests that can be *justified* towards others who are also pursuing their own interest. This is different from (Hobbes') contractarianism, were one seeks to maximise one's own interest while bargaining with others. It is also different from Rawls' form of contractualism where one's self-interest is combined with ignorance (behind the veil of ignorance) to represent justice. Instead, Scanlon argues, being a moral agent includes having the motivation to justify one's acts to others. This means that we should aim at behaving in a way no-one could reasonably reject. Also, this means that one's moral obligations extend to future generations.[3] As it is based on the possibility of reasonable rejection—rather than actual bargaining—there is no reason why this cannot be extended to people who do not yet exist. This, means that, when "deciding how to act, I can ask myself whether future people who are affected by my actions might reasonably reject a principle permitting those actions. For instance, if I want to construct a power plant that will leak radiation in the future, it makes perfect sense to ask whether those who will suffer as a result might reasonably object to my behaviour" [Ashford and Mulgan 2018].

One may object that grounding individual responsibilities in a specific normative theory—Scanlon's contractualism—conflicts with state neutrality, as neutrality asks for the absence of the promotion of a specific doctrine. However, as taking actions that 'no one can reasonably object to' as a starting point seems coherent with Rawls' contractualism (and his reasons for preserving state neutrality), I do believe that taking the perspective of Scanlon's theory does not impede with state neutrality.

Contractualism offers an intuitive account of substantive responsibility, i.e. of when agents can be reasonably expected to bear burdens [Ashford and Mulgan 2018;

---

[3]Bell [2004] justifies environmental education on Rawls' account of intergenerational justice. However, I agree with Postma [2002, 2004] that intergenerational justice is insufficiently developed within Rawls' framework, therefore not able to justify the obligation for sustainable behaviour.

Kumar 2015; Scanlon 1998]. Important for this is that it departs from what a *representative person* in her situation wants. As in general, people have good reasons to want to control their exposure to risk, in turn the global poor and future generations have good reason to reasonably object against individual pollutive behaviour. This offers justification in favour of supporting a generally sustainable lifestyle for everyone. It does not justify individual responsibilities to become a vegetarian or to stop driving one's car—even though this behaviour is pollutive, it is too specific to demand ceasing it as there should be room for individual choice. Contractualism offers a generic account of individual responsibility, and to a large extend individuals can shape this themselves depending on their personal preferences. As many can reasonably reject a generally pollutive lifestyle, i.e. disproportionally conflicting with the needed collective aim of mitigation, and behaviour that is directly pollutive in itself, e.g. starting a power plant, contractualism can offer guidelines for individual responsibility.

4.2.4 Conclusion

Concluding, sustainability aims at leaving *at least* sufficient resources—broadly speaking—and other elements for the current generation and the near future generations to fulfil their basic needs. This purpose can easily be justified from a broad variety of traditions. In general, one should be concerned with the question of how to justify one's behaviour towards others, i.e. including the global poor and future generations. Behaviour that can be rejected on reasonable grounds, such as an overall pollutive lifestyle or actions directly polluting the environment of humans, are unacceptable, and therefore individuals have a responsibility to refrain from this behaviour.

This conception of sustainability is on the one hand sufficiently specific to guide educational practice and policy, and on the other hand sufficiently inclusive and open to be acceptable to the wider public. It does not promote a contested view of nature as it merely sets minimal standards of what should at least be sustained; it is not overly demanding as it leaves ample choice for individual behavioural choices; and it does not promote a specific doctrine, but merely the needed action required to satisfy the basic needs of current and future generations. Using this conception of sustainability to ground education for sustainability avoids the criticisms against enforcing education for sustainability. Therefore, I conclude that it is permissible to establish compulsory education for sustainability (for all state funded schools).

4.3 Objections

In this last section I will defend my view against several possible objections. In section 4.3.1 I will defend my view from the criticism that education for sustainability based on an anthropocentric account of sustainability is both unjust from the point of view of biospheric egalitarianism, and does not guarantee ecological protection.

In 4.3.2 I will discuss whether a state may demand the promotion of moral ideals, given that this impedes with individual's right to self-determination.

4.3.1   Pluralism and anthropocentrism insufficiently protects nature

Kopnina [2012] argues that grounding sustainability (or sustainable development) in a plurality of values (as I propose) departing from an anthropocentric view on nature, does not guarantee ecological protection. It

> represents a radical change of focus from prioritizing environmental pro-
> tection towards mostly social issues, which may or may not be related to
> environment. While the moral obligation in regard to the poor in the
> 'developing' world is acknowledged by most ESD theorists (e.g. Steven-
> son 2006), moral obligations for caring about other species or the entire
> ecosystems is less often part of ESD discourse. [...] [On top of this,] the
> pluralistic perspective might not be truly democratic as the discourse
> on SD is dominated by the perspectives of the political and corporate
> elites. If we consider the power of political or corporate elites and the
> apparently global (although unequal) influence of industrial capitalism
> in shaping the discourse on development, with its clear emphasis on
> human welfare, how can we guarantee that pluralistic perspectives will
> lead students to develop ecocentric values? [Kopnina 2012, 700-707].

The objection seems to be twofold. On the one hand the objection is empirical of nature, stating that the current trend of grounding education in anthropocentrism and a plurality of values is insufficiently capable of guaranteeing ecological protec-tion [see also Jickling and Wals 2008; Wang 2017]. However, given that the above mentioned conception of sustainability has both a clear aim and an method to trans-late this to individual responsibilities, I believe it can provide adequate grounds for justifying ecological protection. As satisfactory data about this are unavailable, a conclusive argument for this cannot be made. However, given that the public accep-tance has a great impact on a policy's effectiveness, and given that the assumption of biocentric egalitarianism is widely contested, it may even be the case that educa-tion for sustainability is taken more seriously (and may therefore be more effective) when it is grounded on pluralism and anthropocentrism.

On the other hand, a believed injustice is stated: assuming biocentric egalitarian-ism, neglecting the 'needs' of non-human nature and ecosystems is unjust. However, as this position is very demanding and can easily reasonably be rejected, it seems more wise to include the protection of ecosystems (for the sake of its intrinsic value) as possibly virtuous, but not obligatory. It seems neither permissible from the point of view of liberal neutrality, as well as possibly counter-productive for the effective-ness of education of sustainability, as a deep ecology foundation for sustainability

will not motivate the far majority of polluting Western countries to change their behaviour. Biocentric egalitarianism can be presented as *one of the* justifications for sustainability, but not as the only justification.

4.3.2   A state may not demand the promotion of moral ideals

In their paper "The promotion of moral ideals in schools; what the state may or may not demand" Doret de Ruyter and Jan Steutel [2013] argue that it is permissible for schools to generate student enthusiasm for pursuing moral ideals, as long as this moral ideal is one that all reasonable citizens can endorse. A moral ideal refers to "(a cluster of) characteristics of a person as well as to situations or states that are believed to be morally excellent or perfect and that are not yet realised" [ibid., 178]. However, De Ruyter and Steutel argue, the state may *not demand* that schools promote the pursuit of moral ideals—be this specific moral ideals such as being brave or caring, or promoting students to promote *a* moral ideal (that they can determine themselves). This is because reasonable people will understand the pursuit of moral excellence to be part of their right of self-determination. As there are many ways in which one can live a life of excellence, promoting one specific ideal or situation (e.g. democracy or sustainability) cannot be demanded of schools.

Though De Ruyter and Steutel do not specifically talk about the promotion of sustainability, their argument can easily be applied to the context of education for sustainability. Promoting sustainability as a moral ideal, e.g. the pursuit of a green lifestyle aiming at a sustainable future, cannot be prescribed by the state, as this conflicts with individuals' right to self-determination. Therefore, reasonable citizens would not agree to compulsory education for sustainability.

However, part of acting sustainably falls within what De Ruyter and Steutel call the "boundaries [that] are given by the deontic dimension that encompasses the moral rules that are required by all citizens" [ibid., 189]. This deontic dimension prescribes hard individual obligations, similar to Kant's perfect duties. Not conforming to these rules is inherently wrong, and individual choice does not impact this. Therefore, unsustainable behaviour forbidden through this deontic dimension can be promoted in schools.

Sustainable behaviour which falls outside of this deontic realm could be seen as part of a moral ideal one could strive for. However, adhering to a sustainable lifestyle—i.e. not prescribing specific sustainable acts or forbidding specific pollutive behaviour, but doing one's fair share in general—can be considered part of this deontic sphere as well. Here, individual choice as to which specific parts of one's behaviour contributes to one's sustainable lifestyle, and which minimally pollutive behaviour is accepted, is provided. Therefore, the behaviour and dispositions that are promoted in my proposal of education for sustainability fall under the deontic obligations all citizens have. Promoting sustainability beyond this minimal threshold may be morally ideal, and can be uphold by many other moral virtues, but is

not something the state can prescribe to schools. Concluding, the view of De Ruyter and Steutel did not conflict with my view in the first place.

4.4 Conclusion

This chapter started with two worries of Jickling, arguing against compulsory education for sustainability. On the one hand, he believed sustainability—the main pillar of education for sustainability—to be a vague concept, often promoting questionable ideas. On the other hand Jickling believed that 'education *for* something', such as for sustainability, conflicts with the aim of education to *educate* rather than *condition* children. Educating sustainability should include that children participate intelligently in the debate surrounding sustainability, critically reflecting its background assumptions, its purpose and their individual part in this.

In this chapter I have tried to answer Jickling's worries. I have constructed a conception of sustainability that can justify compulsory education for sustainability, without being subject to Jickling's criticisms. In other words, I have tried to clarify the concept, and to specify a substantive account of sustainability that is useful in educational practice and policy making. On the one hand, I have argued that the justification for sustainability should be open and inclusive. This ensures that no specific conception of the good is promoted, nor that controversial ideas surrounding sustainability are passed on. Also, using material from a variety of (moral) traditions enables educators to motivate their students, independent of the student's political stance on the matter. Given the variety of traditions presented, it leaves ample room for children to participate in the discussion surrounding sustainability.

On the other hand, the purpose or aim of sustainability should be clear, i.e. able to guide action. To formulate this I have used Scanlon's contractualism, focusing on sharing burdens and taking responsibility following from the idea that one is allowed to behave in a certain way or to pursue something when no one can reasonably reject this. Individuals need to justify their own acts towards others, and these 'others' include the global poor and future generations.

Chapter 5

Conclusion

In this thesis I have justified the permissibility of compulsory education for sustainability, and shown the need for this. In doing so, I have hinged on (a) climate science, showing the seriousness and urgency of the current climate problems we face; (b) (moral) psychological research investigating why citizens and politicians currently neglect rapidly moving towards a more sustainable life style; and (c) ethical and educational theories showing individuals' responsibility for climate action, and the role education could and should play in this.

Throughout the thesis I have engaged in non-ideal theory. Rather than assuming full compliance of individuals to engage in climate action, and assuming the existence of favourable conditions in our (global) political climate, I have conceptualised an understanding of sustainability and education for sustainability that understands that individuals have good reasons (and biases) to not always engage in actions that would be most beneficial for a sustainable future.

In chapter 2 I have briefly shown why the problem of climate change is serious and urgent, as future generations, the global poor and non-human nature are expected to experience severe consequences from its effects. Minimising the risks asks for taking immediate mitigation and adaptation measures. As this severe global environmental problem cannot be solved by one country only, international political cooperation is needed to engage in a collective change towards a sustainable life style.

Though many acknowledge the need for climate action, most individuals and political agents still refrain from taking adequate precautions. I have discussed (moral) psychological research explaining this inertia. When translating this to required aspects for societal change towards sustainability—specifically in the educational context—two matters were specifically important. First, not the ratio but the affective system needs to be engaged when wanting to effectively change individual's behaviour towards the sustainable alternative. When applying this to the context of education, this means a major shift in method. Not focusing on the transmittance of climate facts and needed skills for a sustainable life style, but focusing on morally motivating students to change their behaviour is needed. This asks, next to cognitively preparing students for a sustainable life style, to focus on dispositional changes in students. For example, engaging with future generations, seeing the need

for international cooperation, and understanding pollutive actions as intentionally contributing to the problem of climate changes is needed.

Second, collectively embracing a more sustainable life style requires us to orient towards different values. There is a need to understand sustainable behaviour as a moral demand, which calls for moving away from primarily pursuing individual aspirations, and towards taking the needs of the collective into account.

Both engaging the affective system and orienting towards different values can easily be understood as a call to education. As schools are uniquely equipped to reach all young citizens, independently of their socio-economic background, effectively changing the attitude of children towards sustainability could be seen as a responsibility of schools. In chapter 3 I have argued that tending to the needs of the (global) collective—instead of merely tending to the aspirations of the individual student—is indeed a responsibility of schools. Unfortunately the aspirations of students may very often conflict with promoting sustainability. But given that (a) acting sustainably is needed to prevent large scale infringement of basic human capabilities (of future generations), as the problem of climate change is both serious and urgent; (b) acting sustainably is a responsibility of all individuals, and one is unlikely to sufficiently meet this responsibility without adequate education on this; and (c) when an appropriate method is used, it is plausible that education for sustainability is capable of influencing students' behaviour or worldviews (especially when paired with larger societal changes), I believe promoting sustainability is a responsibility of state funded schools, even when this conflict with the pursuit of individual students' aspirations. Important for this is that education for sustainability should not consist in an extra curricular activity or be offered as a new subject, but a sustainable life style should be engrained in the school atmosphere and policy.

Though the benefits of education for sustainability may be clear, the permissibility of enforcing education for sustainability is questioned by many. This is specifically because of two worries. On the one hand, one may hold that education *for* sustainability, aiming at forming rather than informing students, is awfully similar to manipulating students, or to imposing a state ideology on the nation's children. Instead, it is argued, children should be able to critically examine objective facts on their own, and make up their own mind on whether they want to join a sustainable life style. However, given that, in order to effectively move towards a sustainable life style, a call to the affective system of students seems to be needed, a cognitive approach is likely to be ineffective. Given the great need for collectively embracing a sustainable life style, and given the great harms resulting from a overly pollutive life style, I have argued that it is permissible for education to engage in methods calling the moral motivation of students to engage in sustainable behaviour.

On the other hand, one may oppose to the vagueness or ambiguity of the concept of sustainability. Often very questionable ideas are promoted under the name 'sustainability', and compulsory education should never pass on questionable ideas—especially not when this is done though methods engaging the affective system.

To answer these serious worries, I have tried to redefine and clarify the concept of sustainability. In chapter 4 I have tried to formulate an understanding of sustainability that no one could reasonably reject, therefore making it permissible to be the central focus of education for sustainability. This conception is substantive enough to guide educational practice, especially when it comes to the aims that should be achieved through collectively acting sustainably. But the conception, and specifically the justification for acting sustainably in the first place, should also be open and inclusive. This way, no specific (controversial) conception of sustainability is imposed on children, and children are still able to critically examine their take on sustainability—but it also offers a framework in which children could potentially be raised to adequately satisfy the demands of sustainability. Therefore, I conclude that is justified to enforce education for sustainability—understood as described above, and including the engagement of the affective system and the orientation towards sustainable values—on all state funded schools. In the last two sections of this thesis I will discuss how the findings of this research can be applicable for society, and I will discuss some limits and directions for future research. In both cases I will focus on the the current Dutch educational climate.

5.1 Application of research

This thesis is a call to (educational) policy makers to include education for sustainability in Dutch schools. It has aimed to give initial guidance for its content, and to give directions for effective methodology. On the one hand a framework is given for what could be transmitted in current subjects at mainstream formal educational institutions. For example, during geography children could learn about how individual consumer choices effect resource extraction and manufacturing in distant places; during history emphasis could be laid on how societal (and therefore environmental) problems change through time; both history and citizenship education could focus more on how the students are part of a global community (next to their local one), and the importance of international cooperation through the EU or UN could be discussed; and during courses in languages students could learn about the difference between facts and values.

On the other hand, suggestions have been made to incorporate education for sustainability in the wider educational climate and policy, for example through seeing teachers and other staff as role models, not only behaving sustainably but also explicitly stating the reasons for the importance of this.

On a more theoretical note, the arguments presented in this thesis in favour of compulsory education for sustainability can, with some minor changes, also be used to guide other current educational questions. An example of this is the current debate in the Netherlands surrounding compulsory citizenship education. Many arguments against this (concerning possible manipulation of children, or overworking already overworked teachers) and arguments in favour of this (expressing the need

for more common values and empathy for others) are very similar to the arguments used in favour or against compulsory education for sustainability. I have chosen to merely focus on sustainability, as I believe that the need for this has been sufficiently shown in climate science, therefore providing a solid factual background. But it is plausible that a similar argument could be made for citizenship education.

5.2   Limitations of this research and directions for future research

This research was primarily philosophical, though it used a lot of empirical studies as background knowledge, e.g. to show the severity of climate change, individual's biases when it comes to climate action, or the possible impact of education on individuals' long term (sustainable) behaviour. Due to lack of specific studies into education for sustainability (given the current absence of this in formal education), I have merely been able to argue for the potential and plausible influence of education on children's (long term) behaviour. More in depth research should be conducted into whether specific methods are effective, and e.g. whether education for sustainability could be significantly effective at all when the transmitted values are not confirmed at home, in the neighbourhood, or in the child's future.

Though I have made an initial attempt to argue for a conception of sustainability that is both substantive enough to be able to guide action, and open and inclusive enough so no one can reasonably reject this position, an even more specific account of sustainability should be constructed when wanting to apply it to e.g. the Dutch current school system.

Appendix A

Bibliography

ALLEY, Richard. "Abrupt climate change." *Scientific American* 291 (2014): 62-9.

ALMASSI, Ben. "Climate change and ethics of individual emissions." *Perspectives* 4:1 (2012): 4-21.

ASHFORD, Elizabeth and Tim MULGAN. "Contractualism." In *The Stanford encyclopedia of philosophy*, ed. Edward N. ZALTA (2008).

ATTRIDGE, Nina, Andrew ABERDEIN and Matthew INGLIS. "Does studying logic improve logical reasoning?" In *Proceedings of the 40th conference of the international group for the psychology of mathematics education*, Szeged, Hungary, 3-7 August 2016.

ARCHER, David, Amanda CAWSTON and Bart ENGELEN. "Nudging children: Becoming moral agents." Nuding workshop presentation, Vrije Universiteit Amsterdam (6 April 2018).

BANDURA, Albert. *Social learning and personality development.* New York: Holt, Rinehart and Winston, 1963.

——. *Social foundations of thought and action: a social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall, 1986.

BANKS, Melany. "Individual responsibility for climate change." *Southern journal of philosophy* 51:1 (2013): 42-66.

BAUMEISTER, Roy F. and Mark R. LEARY. "The need to belong: Desire for interpersonal attachments as a fundamental human motivation." *Psychological bulletin* 117 (1995): 497-529.

BAZERMAN, Max H. and Ann E. TENBRUNSEL. *Blind spots: Why we fail to do what's right and what to do about it.* Princeton: Princeton University Press, 2011.

BELL, Derek R. "Creating green citizens? Political liberalism and environmental education." *Journal of philosophy of education* 38:1 (2004): 37-53.

BIESECKER, Adelheid et al. "A caring and sustainable economy. A concept note from a feminist perspective." (2014) Published online at http://library.fes.de/pdf-files/iez/10809.pdf. Accessed 14 March 2018.

BIESTA, Gert J.J. *Learning democracy in school and society. Education, lifelong learning and the politics ofcitizenship.* Rotterdam: Sense publishers, 2011.

—. *Good education in an age of measurement: Ethics, politics, democracy.* Boulder, USA: Paradigm Publishers, 2010.

BISHOP, Michael and J.D. TROUT. "Epistemology for (real) people." In *A companion to applied philosophy*, ed. Kasper LIPPERT-RASMUSSEN, Kimberley BROWNLEE and David COADY (US: John Wiley and Sons, 2017): 103-19.

BONNETT, Michael. "Retrieving nature: education for a post-humanist age." *Journal Of Philosophy Of Education*, 37:4 (2003): 549-730.

BORD, Richard J., Ann FISHER and Robert E. O'CONNOR. "Public perceptions of global warming: United States and international perspectives." *Climate research* 11 (1998): 75-84.

BRIGHOUSE, Harry. *On education.* UK: Routledge, 2006.

BROOME, John. "Private morality." In *Climate matters: ethics in a warming world*, ed. John Broome (USA:Norton and Company, 2012): 73-96.

BUCHER, Anton. "The influence of models in forming moral identity." *International journal of educational research* 27:7 (1998): 619-27.

BUDESCU, David V., Stephen BROOMELL and Han-Hui POR. "Improving communication of uncertainty in the reports of the Intergovernmental Panel on Climate Change." *Psychological scientist* 20 (2009): 299-308.

CALLAN, Eamonn. "Liberal legitimacy, justice, and civic education." *Ethics* 111:1 (2000): 141–55.

—.*Creating citizens: political education and liberal democracy.* Oxford: Clarendon Press, 1997.

CANEY, Simon. "Cosmopolitan justice, responsibility, and global climate change." *Leiden journal of international law* 18:4 (2005): 747-55.

CARR, David. *Educating the virtues. An essay on the philosophical psychology of moral development and education.* London, New York: Routledge, 1991.

CLAYTON, Susan et al. "Psychological research and global climate change." *Nature climate change* 5 (2015): 640-46.

COHEN, Geoffrey L. "Party over policy: The dominating impact of group influence on political beliefs." *Journal personality and social psychology* 85 (2003): 808-22.

COSTA, Dora L., and Matthew E. KAHN. "Do liberal home owners consume less energy? A Test of the voluntary restraint hypothesis." *Economics letters* 119 (2013): 210-12.

CRIPPS, Elisabeth. "Climate change, collective harm and legitimate coercion." *Critical review of international social and political philosophy* 14:2 (2011): 171-93.

CURREN, Randall. "Aristotle's educational politics and the Aristotelian renaissance in philosophy of education." *Oxford Review of Education* 36:5 (2010): 543–59.

—. *Aristotle on the Necessity of Public Education.* Lanham, MD: Rowman and Littlefield, 2000.

DESSAI, Suraje et al. "Defining and experiencing dangerous climate change." *Climate change* 64:1-2 (2004): 11-25.

DEWEY, John. *Democracy and Education.* USA: Macmillan, 1916.

DOBSON, Andrew. *Citizenship and the environment.* Oxford: OUP, 2003.

DUNLAP, Riley E. and Rik SCARCE. "The polls-poll trends: Environment problems and protection." *Public opinions quarterly* 55 (1991): 651-72.

DUTILH NOVAES, Catarina. "Carnapian explication and ameliorative analysis: A systematic comparison." *Synthese* (2018).

FEINBERG, Joel. "The Child's Right to an Open Future." In *Children's rights,* ed. William AIKEN and Hugh LAFOLETTE (Ashgate: Aldershot, 2004): 213-42.

FERKANY, Matt and Kyle Powys WHYTE, "The importance of participatory virtues in the future of environmental education." *Journal of agricultural and environmental ethics* 25 (2012): 419-34.

FINUCANE, Melissa L. et al. "The affect heuristic in judgements of risks and benefits." *Journal of behavioural decision making* 13 (2000): 1-17.

GAGOSIAN, Robert. "Abrupt climate change: Should we be worried?" *Woods hole oceanographic institute* (2003): 1-15.

GARDINER, Stephen M. "A perfect moral storm: climate change, intergenerational ethics and moral corruption." *Environmental values* 15:3 (2006): 397-413.

—. *A perfect moral storm. The ethical tragedy of climate change.* Oxford: Oxford University Press, 2011.

GIFFORD, Robert. "The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation." *American psychologist* 66 (2011): 290-302.

GIGERENZER, Gerd and Ulrich HOFFRAGE "How to improve Bayesian Reasoning without Instruction: Frequency Formats." *Psychological Review* 102:4 (1995): 684–704.

GILBERT, Daniel. "If only gay sex caused global warming." *Los Angeles Times,* 2 July 2006. Accessed April 2018. http://articles.latimes.com/2006/jul/02/opinion/op-gilbert2

GOTTSCHLICH, Daniela and Leonie BELLINA. "Environmental justice and care: critical emancipatory contributions to sustainability discourse." *Agriculture and human values* 34 (2017): 941-53.

GREENE, Joshua D. et al. "An fMRI investigation of emotional engagement in moral judgement." *Science* 193 (2001): 2105-8.

GUBER, Deborah L. "A cooling climate for change? Party polarization and the politics of global warming." *American behavioural scientist* 57 (2013): 93-115.

GUGLIELMO, Steve, Andrew E. MONROE and Bertram F. MALLE. "At the heart of morality lies folk psychology." *Inquiry* 52 (2009): 449-66.

GUTMANN, Amy. *Democratic education.* Princeton, New Jersey: Princeton University Press, 1999.

—. "Civic education and social diversity." *Ethics* 105:3 (1995): 557–79.

HANSEN, James. "Defusing the global warming time bomb." *Scientific American* 290 (2004): 68-77.

—. "A slippery slope: How much global warming constitutes 'dangerous anthropogenic interference?'" *Climate change* 68 (2005): 269-79.

HAIDT, Jonathan. "The emotional dog and its rational tail: A social intuitionist approach to moral judgement." *Psychological review* 108 (2001): 814-34.

—. *The righteous mind: Why good people are divided by politics and religion.* New York: Pantheon Books, 2012.

HAIDT, Jonathan and Jesse GRAHAM. "When morality opposes justice: Conservatives have moral intuitions that Liberals may not recognize." *Social justice research* 20 (2007): 98-116.

HAILWOOD, Simon. "Environmental citizenship as reasonable citizenship." *Environmental politics* 14:2 (2005): 195-210.

HARDIN, Garrett. "Tragedy of the commons." *Science* 162:3859 (1968): 1243-8.

HARRIS, Lasana T. and Susan T. FISKE. "Dehumanizing the lowest of the low: Neuroimaging responses to extreme outgroups." *Psychological science* 17 (2006): 847-53.

HICKEY, Colin J. "Global climate justice and individual duties." Unpublished dissertation (2017).

HILLER, Avram. "Climate change and individual responsibility." *The monist* 94:3 (2011): 349-68.

HOURDEQUIN, Marion. "Climate change and individual responsibility: a reply to Johnson." *Environmental values* 20:2 (2011): 157-62.

HOWE, Peter D. and Anthony R. LEISEROWITZ. "Who remembers a hot summer or a

cold winter? The asymmetric effect of beliefs about global warming on perceptions of local seasonal climate conditions in the US." *Global environmental change* 23 (2013): 1488-1500.

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE. *Climate change 2014: Synthesis report. Summary for policymakers.* Ed. Rajendra K. Pachauri and Leo A. Meyer. Geneva: Switzerland, 2014.

JENKINS, Katharine. "Amelioration and inclusion: Gender identity and the concept of *woman*." *Ethics* 126:2 (2016): 394-421.

JICKLING, Bob. "Viewpoint: Why I don't want my children to be education for sustainable development." *The journal of environmental education* 23:4 (1992): 5-8.

JICKLING, Bob and Arjen E.J. WALS. "Globalization and environmental education: looking beyond sustainable development." *Journal of curriculum studies* 40:1 (2008): 1-21.

KAHAN, Dan M. et al. "The polarizing impact of science literacy and numeracy on perceived climate change risks." *Nature climate change* 2 (2012): 732-35.

KAHNEMAN, Daniel and Amos TVERSKY. "A judgement under uncertainty: Heuristics and biases." *Science* 185 (1974): 1124-31.

KLAASSEN, Cees "Teachers and normative perspectives on education." In *Moral courage and the normative professionalism of teachers*, ed. Cees Klaassen and Nava Maslovaty. Rotterdam: Sense, 2002.

KOPNINA. Helen. "Education for sustainable development (ESD): The turn away from 'environment' in environmental education?" *Environmental education research* 18:5 (2012): 699-717.

KRISTJÁNSSON, Kristján. "Recent Work on Flourishing as the Aim of Education: A Critical Review." *British Journal of Educational Studies* 65:1 (2017): 87-107.

—. *Aristotelian character education.* London: Routledge, 2015.

—. *Aristotle, emotions and education.* Aldershot: Ashgate, 2007.

KUMAR, Rahul. "Contractualism and the roots of responsibility." In *The nature of moral responsibility: New essays*, ed. Randolph CLARKE, Michael MCKENNA and Angela M. SMITH. Oxford: Oxford university press, 2015a.

—. "Risking and wroning." *Philosophy and public affairs* 43 (2015b): 27-51.

KYLLÖNEN, Simo. "Climate change, no-harm principle, and moral responsibility of individual emitters." *Journal of applied philosophy* (forthcoming).

LÆSSØE, Jeppe and Johan ÖHMAN. "Learning as democratic action and communication: Framing Danish and Swedish environmental and sustainability education." *Environmental education research* 16:1 (2010): 1-7.

LEE, Tien Ming et al. "Predictors of public climate change awareness and risk perception around the world." *Nature climate change* 5 (2015): 1014-23.

LEHMAN, Darrin and Richard NISBETT."A Longitudinal Study of the Effects of Undergraduate Education on Reasoning." *Developmental Psychology* 26 (1990): 952–960.

LEISEROWITZ, Anthony. "Global warming in an American mind: The roles of affect, imagery, and worldviews in risk perception, policy preferences and behavior." Unpublished dissertation (2003).

—. "American risk perceptions: Is climate change dangerous?" *Risk analysis* 25 (2005): 1433-42.

LENTON, Timothy et al. "Tipping points in the earth's climate system." *Proceedings of the national academies of sciences* 105 (2008): 1786-93.

LEVINSON, Meira. *The demands of liberal education.* Oxford: Oxford University Press, 1999.

LEWIS, David. "Anthropology and development: The uneasy relationship." In *A handbook of economic anthropology*, ed. James G. *Carrier*, 472-86. Cheltenham: Edward Elgar, 2005.

LI, Ye, Eric J. JOHNSON and Lisa ZAVAL. "Local warming: Daily temperature change influences belief in global warming." *Psychological science* 22 (2011): 454-9.

LINVILLE, Patricia W. and Gregory W. FISCHER. "Preferences for separating and combining events: A social application of prospect theory and mental accounting model." *Journal of personality and social psychology* 60 (1991): 5-23.

LORD, Charles G., Lee ROSS and Mark R. LEPPER. "Biased assimilation and attitude polarization: The effect of prior theories on subsequently considered evidence." *Journal personality and social psychology* 37 (1979): 2098-109.

LORENZONI, Irene and Nick F. PIDGEON. "Public views on climate change: European and USA perspectives." *Climatic change* 77 (2006): 74-95.

MACMULLEN, Ian. *Faith in Schools? Autonomy, Citizenship, and Religious Education in the Liberal State.* Princeton, New Jersey: Princeton University Press, 2007.

MASSOM, Robert A. et al. "Antarctic ice shelf disintegration triggered by sea loss and ocean swell." *Nature* (2018).

MARKOWITZ, Ezra M. and Azim F. SHARIFF. "Climate change and moral judgement." *Nature climate change* 2 (2012): 243-247.

MCCRIGHT, Aaron M. and Riley R. DUNLAP. "The politicization of climate change and polarization in the American public's views of global warming, 2001-2010." *Sociological quarterly* 52 (2011): 155-94.

MᴄMɪᴄʜᴀᴇʟ, Anthony J. and Andrew Gɪᴛʜᴇᴋᴏ. "Human Health. In United National Intergovernmental Panel on Climate change–IPCC working group." In *Climate change 2001: Impacts, adaptation, and vulnerability,* 453-85. Cambridge: Cambridge University Press, 2001.

Mᴏssᴇ, David. *Cultivating development: an ethnography of aid policy and practice.* London: Pluto press, 2005.

Mᴜʀᴘʜʏ, Liam B. *Moral demands in nonideal theory.* New York: Oxford University Press, 2003.

Nᴀᴛɪᴏɴᴀʟ Assᴇssᴍᴇɴᴛ Sʏɴᴛʜᴇsɪs Tᴇᴀᴍ. *Climate change impacts on the United States: The potential consequences of climate variability and change: Foundation.* New York: Cambridge University Press, 2001.

Nᴜssʙᴀᴜᴍ, Martha. "Human functioning and social justice: In defence of Aristotelian essentialism." *Political theory* 20:2 (1992): 202-246.

Oʟɪᴠᴇʀ-Sᴍɪᴛʜ, Anthony. *Defying displacement: Grassroots resistance and the critique of development.* Austin TX: University of Texas press, 2010.

O'Rɪᴏʀᴅɪᴀɴ, T. "Environmental issues." *Progress in human geography* 5:3 (1981): 393-407.

PᴀʀFɪᴛ, Derek. *Reasons and persons.* Oxford: Clarendon Press, 1987.

Pᴀᴛᴢ, Jonathan A. et al. "The effects of changing weather on public health." *Annual review of public health* 21 (2000): 271-307.

Pᴀᴜᴡ, Leo. *Databank effectieve jeugdinterventies: beschrijving 'De Vreedzame School.* Utrecht: Nederlands Jeugdinstituut, 2017.

—. Onderwijs en burgerschap: wat vermag de basisschool? Onderzoek naar De Vreedzame School. Unpublished dissertation Utrecht University (2013).

Pᴏᴏʀᴛɪɴɢᴀ, Wouter et al. "Uncertain climate: An investigation into public skepticism about anthropogenic climate change." *Global environmental change* 21 (2011): 1015-24.

Pᴏsᴛᴍᴀ, Dirk W. *Because We Are Human: A Philosophical Inquiry into Discourses of Environmental Education from the Perspective of Sustainable Development and Man's Caring Responsibility.* Unpublished dissertation, Catholic University of Leuven/Radboud University Nijmegen (2004).

—. "Taking the future seriously: On the inadequacies of the framework of liberalism for environmental education." *Journal of philosophy of education* 36:1 (2002): 41-56.

Rᴀᴡʟs, John. *Political liberalism.* New York: Columbia University Press, 1993.

Rɪɴᴛᴏᴜʟ, Steve et al. "Choosing the future of Antarctica." *Nature* 588 (2018): 233-41.

Rᴜʏᴛᴇʀ, Doret J. "Well-being and education." In *Education, Philosophy and Well-Being:*

New Perspectives on the Work of John White, ed. Judith SUISSA, Carrey WINSTANLEY and Roger MARPLES (London, Routledge, 2015): 84–98.

—. "Pottering in the garden? On human flourishing and education." *British journal of education studies* 52:4 (2004): 377-89.

RUYTER, Doret J. de and Jan W. SLEUTEL. "The promotion of moral ideals in schools; what the state may or may not demand." *Journal of moral education* 42:2 (2013): 177-92.

SANDERSE, Wouter. *Character education. A neo-Aristotelian approach to the philosophy, psychology and education of virtue.* Delft: Eburon Academic Publishers, 2012.

SCANLON, Thomas M. *What we owe to each other.* Cambridge, MA: Harvard University Press: 1998.

SCAVENIUS, Theresa. "Climate change and moral excuse: The difficulty of assigning responsibility to individuals." *Journal of agricultural and environmental ethics* 31:1 (2018): 1-15.

SCHEFFLER, Israel. *Reason and teaching.* Indianapolis: Hackett, 1973/1989.

SCHINKEL, Anders. "Justifying compulsory environmental education in liberal democracies." *Journal of philosophy of education* 43:4 (2009): 507-26.

SCHWENKENBECHER, Anne. "Is there an obligation to reduce one's individual carbon footprint?" *Critical review of international social and political philosophy* 17:2 (2012): 168-88.

SIEGEL, Harvey. *Educating reason: rationality, critical thinking, and education.* London: Routledge, 1988.

—. *Rationality redeemed?: Further dialogues on an educational ideal.* New York: Routledge, 1997.

SINNOTT-ARMSTRONG, Walter. "It's not my fault. Global warming and individual moral obligations." In *Perspectives on climate change*, ed. Walter SINNOTT-ARMSTRONG and Richard HOWARDS (USA: Elsevier, 2005): 221-53.

SLOVIC, Paul. *The perception of risk.* London: Earthscan, 2000.

SLOVIC, Paul et al. "Risk as analysis and risk as feelings: Some thoughts about affect, reason, risk, and rationality." *Risk analysis* 24 (2004): 311-22.

SPENCE, Alexa et al. "Perceptions of climate change and willingness to save energy related to flood experience." *Nature climate change* 1 (2011): 46-9.

STERN, Nicholas. *The economics of climate change.* Cambridge: CUP, 2007.

STEVENSON, Robert B. "Schooling and environmental education: Contradictions in purpose and practice." *Environmental education research* 13:2 (2007): 139-53.

STROUFFER, Ronald J. et al. "Investigating the causes of the response of the thermohaline circulation to past and future climate changes." *Journal of climate* 19 (2006): 1365-87.

SUNSTEIN, Carl. "The ethics of nudging." *Yale journal on regulation* 32:2 (2015) 413-50.

—. *Why Nudge?: The Politics of Libertarian Paternalism.* London: Yale University Press, 2014.

TAJFEL, Henri et al. "Social categorization and intergroup behaviour." *European journal social psychology* 1 (1971): 149-78.

TIMMERMAN, Greetje. "Teacher educators modelling their teachers?" *European journal of teacher education* 31:3 (2009): 225-38.

TRAINA, Frank and Susan DARLEY-HILL. *Perspectives in bioregional education.* Troy, OH: North American association for environmental education (1995).

VANDERHEIDEN, Steve. "Climate change and the challenge of moral responsibility." *Journal of philosophical research* 32 (2007): 85-92.

VELLINGA, Michael and Richard A. WOOD. "Global impacts of a collapse of the atlantic thermohaline circulation." *Climate change* 51 (2002): 251-67.

WANG, Chia-Ling. "No-self, natural sustainability and education for sustainable development." *Educational philosophy and theory* 49:5 (2017): 550-61.

WATSON, Robert T. and Anthony J. MCMICHAEL. "Global climate change—The latest assessment: Does global warming warrant a health warning?" *Global change and human health* 2:1 (2001): 64-75.

WCED–WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT. *Our common future.* Oxford: OUP, 1987.

WEBER, Elke U. "Experience-based and description-based perceptions of long-term risk: Why global warming does not scare us (yet)." *Climatic change* 77 (2006): 103-20.

WEINSTEIN, Neil D. "Unrealistic optimism about future life events." *Journal of personality and social psychology* 39 (1980): 806-20.

WHITE, John. *Exploring well-Being in schools: A guide to making children's lives more fulfilling.* London, Routledge, 2011.

—. *Education and the good life.* London: Kogan Page, 1990.

WINTER, Micha de. *Verbeter de wereld, begin bij de opvoeding.* Amsterdam: SWP, 2013.

YANCY, Antronette K., Judith M. SIEGEL and Kimberly L. MCDANIEL. "Role models, ethnic identity, and health-risk behaviours in urban adolescents." *Archives of paediatrics and adolescent medicine* 156 (2002): 55-61.

YANCY, Antronette K. et al. "Role modelling, risk, and resilience in Californian adolescents." *Journal of adolescent health* 48:1 (2011): 36-43.

ZAVAL, Lisa et al. "How warm days increase belief in global warming." *Nature climate change* 4 (2014): 143-7.