Talking about action:

Political and cultural barriers for a sustainable transition in the Danish school system

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Abstract

This thesis examines how sustainability is prioritised politically and integrated in the Danish municipal primary and lower secondary education. It consults representatives from the Ministry of Education, the Municipality of Copenhagen and ten lower secondary education teachers about their perceptions of sustainability and education and their experiences with integration of sustainability education. Undertaking qualitative research from the standpoint of critical realism, this thesis hence looks into the political and cultural structures as well as individual action related to sustainability education.

This thesis argues that sustainability education must be holistic in content and pluralistic in approach in order to empower learners to action competence regarding a transition towards sustainability. However, this thesis further argues that the dimensions of practice, experience and action likewise are crucial aspects of education in order to prevent solely talking about action. Further, this thesis finds that sustainability education cannot stand alone, but requires supporting institutional frames, managerial support and teacher training.

This thesis criticises the lack of political action and visions on sustainability in the school system as well as the cultural school tradition's impeding structures for a pluralistic engagement with sustainability education. Moreover, it illuminates the barriers and potential solutions to getting started. Thus, it concludes that sustainability is not prioritised holistically in the Danish municipal primary and lower secondary education, neither is it integrated pluralistically.

Key words*: Education for Sustainable Development, Sustainability Education, action competence, neoliberal governance, sustainable transition*

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List of abbreviations

A1, A2	Analysis 1, Analysis 2
CR	Critical Realism
ESD	Education for Sustainable Development
IPCC	Intergovernmental Panel on Climate Change
LSE	Lower secondary education
MC	The Municipality of Copenhagen
MC1, MC2	Representative from the Municipality of Copenhagen 1 and 2
ME	The Ministry of Education
ME1, ME2	Representative from the Ministry of Education 1 and 2
MPLSE	Municipal primary and lower secondary education
PISA	Program for international student assessment
SD	Sustainable development
SDG	Sustainable Development Goal
SE	Sustainability Education
SM	School management
UN	United Nations
UNESCO	The United Nations Educational, Scientific and Cultural Organisation
T1, T2, etc.	Teacher 1, Teacher 2, etc.

1) Introduction: Lack of debate on sustainability education

> We need to educate citizens that are aware that their responsibility stretch longer than their arms can reach and eyes can see. Generations that know which boundaries can be exceeded and which need to be protected. Generations, whose enthusiasm and compass of values are so closely interwoven that they never doubt that the planet's boundaries are infinitely more important than the nation's – Mads Strarup (2018a: 56).

Much has happened over the last year in the discourse on climate change. After a remarkably warm summer in 2018 and with Swedish Greta Thunberg's call for the youth to protest from school in September (Crouch, 2018), the climate debate finally reached outside the intellectual circles. The general attitude towards sustainability[1] and climate has changed from being a question of interest to becoming an issue the majority consider a necessity to address (CSR, 2018). Climate consciousness in terms of awareness about the greatest CO_2 emitters, such as fossil fuel, beef, flights and clothes appears to be basic knowledge that even children today are aware of[2]. It appears that the necessity of a cultural change of society has sunk in. With the latest IPCC report's conclusions on transitions necessary in order to limit global warming to 1.5°C (IPCC, 2018), it is no more questionable that the reorientation of society and cultural change need to happen fast – and at all levels in all sectors.

However, the climate discussions appear to have certain focuses, most often on the biggest CO_2-emitting sectors; energy, transportation, agriculture, and private consumption (Danmarks Radio, 2019b), or as Scavenius and Lindberg put it – on development of new markets and the individual's (purchasing) behaviour. The predominant narrative of climate politics is concentrated on an individual-oriented, emission-based understanding of the climate challenge, failing to include a focus on institutions and political and social contexts (2018: 64).

Sectors as that of education has gained remarkable little focus in the climate discussions on solutions. In Denmark this is exemplified in the public television program *Debatten*, which in January 2019 invited key persons within the education sector to discuss the purpose of the municipal primary and lower secondary education (MPLSE) (Danmarks Radio, 2019a). Despite 90 minutes' debate, no one mentioned sustainability education (SE) or the like.

Another example is *Denmark's Teaching Festival*, which I attended in March 2019 to look for the newest suggestions to pedagogics for sustainability. Despite more than 70 different talks, and 8,350 participants, there was not a single talk focusing on sustainability (Danmarks Læringsfestival, 2019).

Danish university students have recently started to require classes on climate change to be included in the curriculum of political science (Larsen, 2019), but there has been little focus on rethinking the purpose and content of the MPLSE.

Education might not be directly linked to CO_2 emission cuts. Nonetheless, education holds the preventive power of educating the next generation and equipping them with competencies to act in a world of inequality and ecological crises. In this regard, education might be necessary for

[1] Throughout this thesis the use of the term sustainability rests upon the Brundtland Report's definition of sustainable development as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (UN, 1987: 37).
[2] After having spent six months in contact with a range of different school classes, it is my general impression that children understand, question and are curious about sustainability and solutions.

a change of thought. As Einstein expresses it, "We cannot solve our problems with the same line of thoughts we applied when creating them" (Fadel et al., 2017: 25). Education can thereby be seen as the foundation for generating a long-term sustainable transition.

Viewing education as a catalyst with transformative power to foster long-term sustainable transition of society, this thesis aims at illuminating how sustainability is prioritised politically and integrated in the Danish MPLSE system. In this regard, this thesis explores which barriers that hinder a more profound engagement with sustainability in the MPLSE and considers how to overcome them. Thereby, this thesis reflects upon how basic education should be in the era of ecological crisis. As such, it is the aim of this thesis to contribute to the debate about the need for SE.

1.2 Relevance of the study to Human Ecology

This thesis stresses the need for rethinking the school system and reorient education to rely profoundly on the need for a sustainable transition. Thus, it takes a critical approach to the established education system and calls for a greater focus and implementation of Human Ecology perspectives into education. The thesis is aligned with Human Ecology's triangulation of environment, society and individual, as it engages with education of the individual in sustainability while considering how the dominating structures and culture of society influence this agenda. Further, it interacts with different perspectives on culture, power and sustainability, as it engages with relevant structure-agency relations and political and cultural barriers for integrating sustainability into the school system.

1.3 Research questions

How is sustainability prioritised and integrated in the Danish municipal primary and lower secondary education[3]*?*

Sub-questions

1. *How is sustainability prioritised politically in terms of objectives and allocation of resources at ministry- and municipality-level?*

2. *How is sustainability integrated into the teaching as well as school culture according to lower secondary education teachers' experiences*?

2) Intersections between sustainability and education

This thesis sees sustainability as a polycentric, multi-level challenge being about social transformation. Therefore, this thesis embraces a holistic approach to the sustainable transition linking the sustaining agenda regarding climate, environment and biodiversity to the developing agenda of peaceful and equal societies. In this sense, understanding sustainable transition as the goal of a transition towards an ecologically and socially sustainable society.

[3] In Denmark, the MPLSE goes from 0th to 9th grade – educating pupils age 6-16. It is divided into three levels: 1th-3rd class [pre-preparatory classes], 4th-6th class [intermediate stage], and 7th-10th class [lower secondary education]. 10th grade is optional.

This thesis builds on UNESCO's framework of education for sustainable development (ESD). Not as an ideal perception of education, but as a normative point of comparison since ESD is internationally agreed upon qua its presence in UN's SDGs' target 4.7 on quality education,

> By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development (…) (UN, n.d.1)

with the indicator being,

> The extent to which (…) education for sustainable development (…) are mainstreamed at all levels in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment (UN, n.d.2).

Sustainability has been a known term since 1987, and as early as 1992 United Nations (UN) recognised education as a crucial mean for achieving SD (UN, 1992: 36.5). ESD was devoted a decade of focus in 2005-2014, calling for urgent action to mainstream ESD at all levels and in all areas of education. E.g. by encouraging governments to "review the purposes and values that underpin education" and urging Ministries of Education to focus on capacity building for SD (UNESCO, 2014: 1-2). Thus, the concept of ESD has existed for more than 25 years.

2.1 Sustainability education in a Danish context

Despite a decade of focus, by 2013 no political initiatives regarding ESD had been made for the Danish MPLSE, despite a survey revealing that 75 per cent of Danes advocated sustainability to be an obligatory part of school curriculum (Hansen, 2013). The national political lack of engagement with ESD is further visible in the government's plan for implementing the SDGs in Denmark, where none of 37 objectives focus on ESD (Finansministeriet, 2018: 16-18).

According to the SDG Index 2018, Denmark scores 96.1 per cent in SDG 4 on quality education (2018: 70). Thus, Denmark is more or less believed to have fulfilled the SDG goal when it comes to education. However, the measurements regard PISA[4] test results and do not consider target 4.7 (2018: 171).

2.2 Current education policies in Denmark

The Danish MPLSE system is founded on a tradition of *dannelse*[5]. However, in recent years the debate has centred on how the Danish MPLSE can compete in a global world and questions on the efficiency of the school system have been discussed widely (Læssøe et al., 2016: 114).

In 2013, the government launched a new MPLSE reform with the aim of lifting pupils' technical level, measured by national tests (ME, 2013: 23). Simultaneously, an Act[6] tightened the teachers'

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[4] Program for international student assessment (PISA) launched by Organisation for Economic Co-operation and Development (OECD) in 2000, comparing pupils from 80 countries in math, literacy and natural science (OECD, n.d.)

[5] The Danish pastor, theologian, teacher, writer, and politician, N.F.S. Grundtvig's (1783-1872) thoughts on teaching and schooling have profoundly altered the Danish school system. He argued for educating the youth to take active part in the culture, society and democracy, which today is considered *general education* [dannelse] (Grundtviansk Forum, n.d.).

[6] Act 409. Before the Act the teachers had more influence on how to coordinate their working time and could decide individually when and where they would prepare their teaching. With Act 409, it is required

working conditions and 3,385 objectives were introduced as mandatory steering objectives[7] (ME, 2018a). The reform was much debated due to the significant political steering of the school with increased focus on tests and grades, criticised for making learning and teaching subjects to economic rationality (Illeris, 2015: 39-40).

The reform is further criticised for leaving the MPLSE in crisis. The objectives of the reform are still not reached (Dohm, 2019) and multiple schools experience lack of financial fundament due to cost-savings, e.g. removing opportunities of employing relevant substitutive teachers (Bjerril, 2016). In 2018, parts of Act 409 were rolled back in order to give back some freedom to the schools and teachers (ME, 2019). Overall, the political ideology and logic behind the MPLSE has been rolled back and forth throughout the last decades – emphasising both centralisation and decentralisation. However, focus has been on reforming minor elements of the school system, not rethinking education for the future.

2.3 A need for sustainability education

Professor in Lifelong Learning, Knud Illeris, argues that today's changeable and complex world requires problem-oriented and practice-related educational frames (2016: 80) – in contrast to the existing emphasis on technical skills. This argument is further sharpened in the context of sustainability by professor in Environmental Pedagogics, Jeppe Læssøe. He advocates a new perception of education in the light of the need for sustainable transition and highlights the importance of action competence and critical consciousness (Læssøe et al., 2016: 155).

Founder of the Green Private School of Copenhagen, Karen Maclean, discusses how SE should take form and emphasises practice-based learning. She argues that the frames of learning have great influence on the ways we think. Maclean criticises learning situations where the frames do not allow for a direct, sensuous, and relatable relation to the subject of learning, e.g. learning about nature in a classroom instead of in nature. Another way to challenge the predominant perception of knowledge, she argues, is to embrace a broader perception on knowledge that includes practical learning, e.g. abilities to repair things, gardening, and social skills as endurance (Maclean, 2017).

Vice-principal at Copenhagen Open College, Mads Strarup, considers the question of sustainability in a historical context. He calls climate change a question about *dannelse* [general education], arguing that we have had too much faith in the politicians' ability to regulate and in the technology industry's ability to invent technological solutions. For decades we have let generations pass through the education system without an ambition of educating in SD (2018b).

Strarup compares today with the time after WW2, where similar questions on how to develop society arose. In the 1950s, Hall Koch's ideas on democracy as a way of life resulted in thorough democratic education in the Danish school system. Today, Strarup argues, we need SE to cope with the ecological crisis of our time (2018a: 21-22). Strarup further contributes to the debate by presenting a collection of experiences from four different Danish education institutions, which are front-runners in integrating sustainability. Hence, showing that it SE is possible and already happening while passing on experiences for inspiration.

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to be present at the school during the whole working day and it is to a higher extent the SM's decision how the teachers' working time should be organised (Danmarks Lærerforening, 2013: 3-4).

[7] 215 competence objectives and 3,170 skill- and knowledge objectives.

Whereas Illeris and Læssøe emphasise the need for rethinking education, and Maclean as well as Strarup illuminate how such rethinking could look like, this thesis engages with the underlying structures and illuminates how these hinder a realisation of SE in the MPLSE.

3) Methodology and methods

3.1 Why public education and why Denmark

The MPLSE is an essential institution to look at as 77 per cent of the Danish population attend ten years of MPLSE (ME, n.d.6). This makes Denmark an interesting country to look at since political and cultural changes in the MPLSE will affect the education of a majority the population, compared to countries where private schools are more common, e.g. Netherlands and Ireland[8] (OECD, 2012: 19).

Furthermore, Denmark has an internationally well-known school system and is a well-functioning democracy. Not to mention a Danish perception of being a green front-runner due to inter-nationally known environmental solutions, such as windmills. All in all, this provides Denmark with good opportunities for initiating and realising a sustainable transition of society and promoting SE in the MPLSE.

3.2 Phenomenon to be studied

In order to examine the Danish MPLSE's capacity for educating to sustainable consciousness and action, this thesis explores the political and cultural frames of the MPLSE system as well as the prevailing perceptions on education and sustainability within the system. This is done by consulting the Ministry of Education (ME) and the Municipality of Copenhagen (MC) to better understand the political strategies for promoting education that reflects current challenges such as sustainability. Further, by consulting sustainability-conscious[9] MPLSE teachers about their experiences with integrating sustainability in their teaching. Thus, this thesis has two focuses and operates on two levels:

Focuses of research

A) *Content* – whether sustainability is prioritised holistically[10] in the subject objectives

B) *Teaching methods* – whether an action-oriented and pluralistic[11] approach to sustainability is integrated in the teaching, and if not, due to which barriers

Levels of research

- *Public authorities* – the extent to which ME and MC are prioritising sustainability in the MPLSE (A), and how their priorities affect the frames of the school, e.g. in terms of teaching methods (B). In order to understand the discovered political priorities in a broader perspective, the prevailing truths, i.e. the discourses of climate politics and

[8] In Netherlands 34 per cent attend public schools. In Ireland 39 per cent attend public schools (OECD, 2012: 19).
[9] The selected teachers are considered motivated and sustainability-conscious, as they have all tried to incorporate sustainability in their teaching, for instance with help from *Klimaambassaden*, where I work. For a further description of Klimaambassaden see 3.5.
[10] See theory on Sustainability Education, 4.2.3.
[11] See theory on Sustainability Education, 4.2.3.

education politics are considered. This will be done partly by interviews with representatives from ME and MC, partly by analysing policy documents.

- *MPLSE teachers* – as the individual teacher is to interpret the subject objectives and decide on teaching methods, I have interviewed teachers who try to integrate sustainability into their teaching. Partly, to get insights to their experiences with teaching in sustainability (B). Partly, to understand their experiences with the school system's frames, hereunder perceived barriers for further integration of sustainability. I.e. reasons to the relative absence of sustainability.

3.3 A critical realist design

The two levels of research reflect a critical realist (CR) ontology[12] as it approaches the focus of research from an interrelated structure-agency perspective in order to illuminate the different layers of reality and understand the underlying mechanisms and structures.

Inspired by Roy Bhaskar's work, this thesis has thus adopted a CR position as methodological approach as this it primarily engages with real structures and institutions, e.g. rather than discourses. In this regard, it looks into current structures of the school system in the light of global as well as national cultural, political and historical tendencies (e.g. neoliberalism and school tradition). Doing so, it focuses on both the political and structural level of national reforms and international initiatives (ESD) while also engaging with the cultural and lived practice-level of the teachers. These two levels help determine the school system's capacity for educating holistically and pluralistically in sustainability by considering the political visions and declarations, while at the same time engaging with the system's conditions in practice through the teacher experiences. Thus, this thesis aims at determining how the ME and MC's intentions and decisions are translated into practice by the teachers.

According to Sayer, such an examination requires qualitative research and interpretation in order to discover agents' (e.g. teachers) circumstances in their specific context (Sayer, 2000: 23). Overall, CR provides a good theoretical framework for this thesis as it acknowledges the relative constructivism of knowledge (and thereby learning), but simultaneously considers the reality of climate change as a factual crisis (Bhaskar, 2010).

This ontological stance has informed the choice of empirical data for including both legislators', administrators' and practitioners' point of view, and the choice of theory for expanding from theory on pedagogy to theory on neoliberal governance. Further, it has framed the focus of research being qualitative, but including quantitative, objective elements.

[12] CR sees structures and agents as two independent levels that affect each other. In this regard, social structures are viewed as real and affecting individuals, while it is acknowledged that agents can transform and reproduce social structures. In other words, behaviour is selective as well as adaptive and need to be understood in terms of particularities of subjects as well as their contexts (Sayer, 2000: 26), i.e. phenomena cannot be reduced to the individual, as meanings are related to practical and material circumstances and contexts (ibid.: 17). Hence, society comes to represent the sum of dynamic interaction between agents and structures, and is constantly changing over time. In other words, the world is seen as *stratified* (ibid.: 12) as the real world exists independently of humans' experience (ibid.: 10). Thus, a researcher can never be completely certain about uncovering the actual truth or whether just reaches one layer of a stratified reality.

3.4 Qualitative research

3.4.1 Interviews

This thesis relies on qualitative research in the form of semi-structured interviews, as interviews are well suited for studying people's experiences (Kvale, 2007: 46). Their openness allows the interviewer to inductively examine the teachers' and public authorities' perceptions and opinions. However, this research likewise contains deductive elements as it simultaneously tests the implications of the theories (ibid.: 38). Therefore, a semi-structured interview design has been chosen, where certain themes are covered, yet with room for openness to the interviewees' elaborations (ibid.; 65).

The interviews are analysed by *meaning interpretation*, i.e. going beyond what is directly said in the interviews to re-contextualise the statements within a broader frame of reference. Partly, for a deeper and more critical interpretation of what is said, and partly to work out structures and relations of meaning not immediately apparent (ibid.; 107).

3.4.2 Desk research

In order to critically examine the accounts given by ME and MC, policy document analysis in term of *content analysis*[13] have supplemented the analysis of ME and MC's political priorities. This is done to get an overview of how the term sustainability is used and engaged with in the policies. Analysis of policy documents has further been used to *triangulate*[14] the findings of the teachers and public authorities, and to substitute for limited answers from ME and MC.

3.5 Empirical data

- Ten interviews with MPLSE teachers from eight different schools, who have tried to integrate sustainability into their teaching, for instance in collaboration with my workplace, *Klimaambassaden*[15]. Teacher data is referred to as T1, T2, etc.

- One interview with a municipal politician from the Children and Youth Committee of MC, where the responsibility for the MPLSE is placed. Referred to as MC1.

- One interview with a municipal officer from Centre for Policy in the Children and Youth Administration of MC, where the responsibility for the MPLSE is placed. Referred to as MC2.

- One email[16] from a ME officer (the UNESCO office), referred to as ME1.

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[13] *Content analysis* is a technique for quantifying how often specific themes are addressed in a text (Kvale, 2007: 105)

[14] *Triangulation* refers to crosschecking the findings found via one method by supplementing with another method (Bryman, 2012: 635).

[15] *Klimaambassaden* [The Climate Embassy] is the Danish think tank CONCITO's teaching program, where teachers can reach out for support, e.g. in the form of an external lecture or workshop about climate change and/or sustainability. Klimaambassaden has a practice- and solution-oriented approach to teaching, and seeks to get the pupils' knowledge, opinions and experiences into play through dialogue, and tries to incorporate local initiatives and practical solutions through workshops and company-visits (CONCITO, n.d.).

[16] As several contacted representatives from the Ministry of Education have been unable to conduct an interview my data from the Ministry is in the form of emails.

- One email from a ME officer (a pedagogics consultant), referred to as ME2.

The three interview categories have been chosen as they represent three different layers in the school system[17]; ME legislates on the area of education and decide on subject objectives (ME, n.d.5), MC runs the individual schools in terms of allocating resources (ME, n.d.1), and the teachers interpret ME's objectives and operate within the frames of MC.

3.5.1 Sample

The ten teachers were selected based on their engagement with sustainability. This group of teachers already made efforts to promote focus on sustainability at their schools, and thus their respective experiences with SE are arguably more relevant to this research – compared to examining random schools where sustainability is not at all a priority.

The selected teachers all teach in lower secondary education (LSE)[18], as sustainability appears a topic that primarily is treated in the higher classes due to the complexities of the topic (T1), (T5), (T9), (T8). The sample consists of a mix of humanity, social and natural science teachers due to the stand that sustainability is important in all subjects. Lastly, the selected teachers where all based at schools within the region of Copenhagen with the majority located within MC. This choice reflects the opportunity to compare different teacher experiences within the same municipal administration as well as with teacher experiences from a few other municipalities.
For further details about teacher demography and school geography, see appendix 1.
Thus, the sampling is *purposive* to the extent that it is based on a set of characteristics (MPLSE, LSE, sustainability conscious teachers), and *convenient* to the extent that the interviewees are of a geographically proximity and are obtained through the network of my work (Bryman, 2012).

As it is up to the individual municipality, school and teacher to interpret and practise the school law and the subject objectives sat by ME, this thesis will not be able to conclude anything general about sustainability in Danish MPLSE. However, it will give an insight to how sustainability is handled and thought upon in a MPLSE context by a handful of different teachers.

3.5.2 Transcription and translation

As all interviews are conducted in Danish and significant parts of the literature are Danish, there might be nuances lost in the translation. All interviews are transcribed and anonymised and can be accessed by inquiry. The reader should bear in mind that transcriptions are interpretative constructions (Kvale, 2007: 98), and constitute a sampling of selected dimensions of the oral interview for the written transcription (ibid.: 5).

3.6 Reflexivity

The initial wondering behind this thesis relies on personal experiences through my work at *Klimaambassaden* with MPLSE in Copenhagen. Thus, my own experiences with the school system influence this thesis' focus and findings. Furthermore, as the interviewed teachers were

[17] As it was revealed that the school management (SM) played a crucial role for the integration of sustainability, four SM were contacted in order to include their perspective on integration of sustainability. However, as only two, short replies were given, this data is not included.
[18] Corresponding to 7th, 8th and 9th year in the Danish MPLSE, and contain pupils age 12-16 y/o.

acquainted with the purpose and work of Klimaambassaden, their utterances might be biased in the sense that they confirm this agenda.

Being aware of the power dynamics an interview situation can foster (Bryman, 2012: 491), I further sought to equalise the relation with the teachers by being informal, which according to Kvale can be a fruitful tactic (Kvale, 2007: 41) to create an open and honest conversation.

As many teachers today are stressed due to their workload, I decided to make short interviews of 30-45 minutes, and further to do the interviews at the teachers' workplaces in order to limit their burden of helping me. I further made contracts of anonymity. The interviews taking place at the teachers' schools further allowed me to see and sense the context of their experiences and made it easier to take the role as a humble guest, grateful for their contribution.

4) Theoretical framework

4.1 Theory on neoliberalism and educational governance

4.1.1 An institutional focus

Scavenius and Rayner (2018) call for a focus on the societal institutions' role in the response to climate change, with the argument that the threat of climate change is a multi-level governance and polycentric challenge (2018: 2). They criticise a narrow-minded *climate reductionism* for being predominant in climate politics. Accordingly, climate change and human complexity is reduced to a simple question of stopping pollution as a mere technical issue, i.e. by focusing on the effects of goals of political action rather than its socio-political conditions (2018: 6).

Scavenius and Lindberg argue that culture, legislation, political and institutional contexts have a decisive influence on individuals' climate behaviour (2018: 71) and criticise the predominant narrative of climate for being blind to the social and political structures that condition human behaviour. They see the current political approach to climate politics as an individual-oriented, emission-based understanding of the climate challenge. Arguing that contextual factors can accommodate and promote sustainable action, they call for the creation of action-supporting contexts (2018: 70).

As sustainability is non-reductionist and holistic, this thesis will draw on *climate reductionism* as a useful term to understand how certain approaches to sustainability remains predominant in education policies and remains relevant to the integration of sustainability by teachers. Hence, this thesis relies on Scavenius and Rayner's term of *climate reductionism* and Scavenius and Lindberg's notion of action-supporting contexts in the analysis of how sustainability is prioritised in the MPLSE.

4.1.2 Neoliberal governance of education

Neoliberalism's undemocratic impact in public institutions

According to Scavenius, neoliberalism contributes to a loss of institutional capacity, as its implementation of market principles and competition replace the traditional democracy's care for the long-term institutional development. It only values what can be measured and translated to the global market. In this sense, the current reforms in the Danish school system seek to effectively adapt the pupils to the global labour market, emphasising competition much higher

than community. Further, she criticises neoliberalism as a steering instrument that depoliticises itself by making neoliberal political decisions appear necessary (Scavenius, 2013). Scavenius considers the neoliberal state a massive administrative sector that has troubles regulating and developing political norms, as regulation and norms are not market supporting. She points to the example of the university[19] as an institution, where systems has been initiated politically with an aim of promoting competition, e.g. quantitative assessments relying on a market-based price determination. Therefore, Scavenius argues that neoliberalism is a fruitful frame of understanding to approach the political-economic dynamics that currently challenge the welfare state, e.g. the school system (Scavenius, 2018).

This thesis will use Scavenius' claim of undemocratic institutional change and depoliticised neoliberal political decisions in the analysis of the political priorities in the MPLSE.

Education's external interests

Like Scavenius, Mangez and Hilgers (2012) also problematise a broader transformation of the field of (education) knowledge, seeing PISA as a symptom, which they argue contribute to an understanding of education that is primarily defined in terms of its contribution to external interests. Relying on Bourdieu's field theory, they describe how the field of knowledge responds to respectively *internal and external forces*. Arguably it is the balance between them, which determines the autonomy of the field and its symbolic structures, i.e. the ways of thinking, the ways of doing things, principles of hierarchisation, etc. (2012: 191). If external forces are predominating, which Mangez and Hilgers argue is the case with the current emphasis on economic logics in the neoliberal society (2012: 194), the field of knowledge will lack autonomy and might not function according to its self-defined principles. In this regard, they point to a competition between a cultural and economic fraction, which respectively represents knowledge for its own sake and policy-oriented knowledge based on utility considerations (2012: 192). The notion of *external and internal forces* will be used in the analysis of the political priorities in the MPLSE.

Neoliberal impact on learning

Mangez and Hilgers' problematisation of a change in the field of knowledge is referred to as *learnification* by the Dutch Professor in educational science, Gert Biesta. He argues that we are about to lose our sense of values and purposes of education with the economic steering rational of the current neoliberal policies (Biesta, 2009: 29). Biesta problematises how the current evidence-based focus on *what works* is not just anti-democratic (2009: 16), but also confuses quality education with objectives and indicators of quality education (2009: 24). He criticises a focus on *effective* education, without addressing effective for *what* and *whom* (25). Instead of blindly valuing what is measured, he calls for a focus on *good* education and for considerations on values of education (2009: 37). Biesta's term of *learnification* will be further applied in the analysis of the political priorities in the MPLSE.

4.2 Theory on integration of sustainability in education

4.2.1 Learning as constructivism

This thesis relies on a constructivist approach to learning. Opposite a cognitivist approach, which tries to direct pupils' thinking, constructivism accepts the autonomy of the pupil and

[19] Despite the fact that Scavenius primarily is concerned with the institution of the university, not the MPLSE, I will argue that the critique is the same.

advocate pupil-centred learning. In this sense, the teacher takes the role as facilitator, helping the learner to discover meaning rather than conveying information. As learning is different from individual to individual, it requires teachers to adopt a range of teaching strategies in order not to privilege one group of learners by teaching in their way of learning (Carlile & Jordan, 2005: 19-20). According to Carlile and Jordan, constructivism perceives learning as a social process as "thinking does not exist independently of the world" (2005: 22). They point to the French sociologist Foucault (1975), who argues that knowledge is embedded in all kinds of activities and social relations. Hence, knowing is inseparable from action and environment (2005: 23) and involves the whole mind (2005: 20).

This thesis relies on Carlile and Jordan's points about involvement of the whole mind in the analysis of how sustainability is prioritised and integrated in the MPLSE.

4.2.2 Problem-posing education

Paulo Freire, the founding father of critical pedagogy, criticises the teaching tradition's teacher-pupil relationship for relying on a dichotomy of the one who knows (teacher) and the ones who do not know (pupils), i.e. assuming that pupils can be 'filled' with knowledge through one-way communication, which leaves them to become passive reproductions of status quo. This *banking concept of education*, as Freire terms it, constitutes an uncritical engagement with the learned, alienation from own decision making, a false perception of reality and an illusion of action (Freire, 2005: 86). Instead, Freire calls for *problem-posing education* (ibid.: 79), referring to the virtue of "learning to perceive political, economic and social contradictions, and to take action against the oppressive elements of reality" (ibid.: 35). In order to achieve such educational outcomes, Freire considers it necessary to perceive pupils as cognitive actors that can contribute to re-creation of knowledge through shared reflection and action. In this way, pupils can discover themselves as permanent re-creators of history (ibid.: 69) and can connect to reality, and thereby act upon the world in order to transform it.

In the analysis of the MPLSE's attempts to educate pupils to sustainability, this thesis rests upon Freire's notion of critical consciousness and responsibility for change and his dichotomies of *knowing – not knowing / active – passive / rethinking – adapting.*

4.2.3 Action competence of sustainability education

Whereas Freire's critique of the school system rests on a general perception on oppression, Wolf et al. combine these thoughts with education in sustainability. They argue that SE requires a *holistic* approach to content and a *pluralistic* approach to teaching methods. A holistic approach integrates all perspectives and dimensions of sustainability (the ecological, social, economic dimension and their interrelationship and interactions over time and space). A pluralistic approach relies on problem-oriented and cross-curricular methods, embracing conversation and accepting different views with the aim of encouraging pupils to critically evaluate different perspectives, fostering democratic action competence (Wolf et al., 2017: 3).

This thesis draws on Wolf et al.'s terms of *holistic* and *pluralistic* which will stand as a normative point of departure for SE. Further, it draws on their emphasis on action competence as a basis for learning sustainability.

4.2.4 Teaching traditions as barrier for ESD

Wolf et al. point to a study of integration of ESD in Swedish schools, which finds teachers' teaching traditions to be a barrier to ESD. In this study, by advocating a pluralistic approach, Borg et al. (2012) criticise a *fact-based* and *normative* approach to sustainability. The *fact-based*

tradition is considered problematic as it is teacher-centred and has little collaboration with other subjects. Hence, sustainability issues are seen as a problem of knowledge, which leaves only ecological scientific facts to be of relevance. The *normative tradition* is criticised for being a tool with solutions and values decided upon by politicians and experts, relying on the perception that schooling of the right values will change pupils' behaviour (Borg et al., 2012: 186-187).

Borg et al.'s terms of *fact-based* and *normative* approaches will be used in the analysis of how sustainability is integrated in the MPLSE.

4.2.5 Experience-based learning for action

Building upon Freire and Wolf et al.'s conversation-oriented idea of action competence, this thesis further examines the degree to which room for actual action (and not just talking about action) is prioritised and integrated in the approach to sustainability. Here this thesis rests upon the American psychologist David Kolb's theory of experience-based learning, suggesting that ideas develop from experience and that learning by experiencing is crucial for pupils' identification with the learned. With a point of departure in active experimentation, direct sense-experience and in-context action, feeling, thinking, doing and watching are all part of the process of learning. Thus, including different ways of learning, stressing balance between theory and practice. Experimental learning focuses on learning from life experience as opposed to theory-based lectures in a classroom (Kolb, 2015: xviii).

4.2.6 Misconceptions of education

Throughout the analysis, this thesis will draw on Illeris' (2015) theory on misconceptions of education, as a way to reflect upon how intended priorities of sustainability are not necessarily reflected in the integration of sustainability.

The ideological misconception revolves the illusion that there is per se accordance between the stated purposes of the education and the way the education is designed and organised. Illeris criticises the discussion about every word in the object clause for being an ideological discussion separated from the negotiations about the practical frames of the school (Illeris, 2015: 269).

The psychological misconception is the illusion of a convergence between what is taught and what is learned. Illeris criticises the predominant perception that the teacher's back is covered for critique if s/he has taught after the prescribed technical content, regardless of how and what the pupils have got out of it (ibid.: 272).

The utopian misconception is the idea that education can solve all problems – also those that are self-contradictory or conflict with stronger societal powers, which are not perceived necessary to change. E.g. today's wish for self-dependent and creative pupils within a school system designed for the industrial society's needs for discipline (ibid.: 273).

5) Analysis 1: Political priorities – frames and objectives

The analysis is divided into two analyses, focusing on respectively the political prioritisation (A1) and the integration (A2). This chapter looks into the former, firstly examining the political priorities regarding sustainability in the MPLSE at ministry-level, secondly, at municipality-level.

5.1 From policy to contents

5.1.1 Sustainability between the lines

Considering the overarching purpose of the MPLSE, both ME representatives argued that the pupils are already taught about sustainability. ME1 argued the MPLSE's "current objectives (…) to a certain extent already touch upon central aspects of SDG 4.7" (ME1). Likewise, ME2 referred to the school Act's object clause[20], where he highlighted the sentence "(…) pupils' understanding of human's relation with nature" (ME2) as documentation. Claiming that sustainability is present in the MPLSE by emphasising one sentence is arguably an example of Illeris' ideological misconception of education; the illusion that there is per se accordance between the stated purposes and practice (Illeris, 2015: 269).

Considering that the object clause has not been adjusted since 2006[21], it has not been revised in accordance with two significant political milestones in addressing sustainability; the launch of the SDGs in 2015 and the Paris Agreement in 2015, which illuminates how ME lacks political prioritisation of sustainability.

5.1.2 Sustainability in natural science

The ME representative further stressed that sustainability is present in the LSE natural science subjects (biology, geography and physics/chemistry), pointing to respectively an interdisciplinary natural science course, where four of six topics engage with sustainability[22], and the subject purpose of biology as examples. In this regard, the presence of sustainability in the subject purpose and objectives of biology[23] will be considered in the following. The ME representative highlighted following two paragraphs to stress the focus of sustainability in natural science education through the example of biology,

> The pupils shall in biology acquire skills and knowledge about ecosystems, microbiology, evolution and use of natural basis with a weight on understanding fundamental biological terms, biological connections and important use of biology.
>
> The pupils' responsibility towards nature, environment and health shall be developed, so they gain confidence to own opportunities for decision and action regarding a sustainable development and human's interaction with nature – locally and globally (ME2).

Whereas the first paragraph focuses on sub-fields within environmental science, the second paragraph introduces a notion of responsibility, decision and action regarding nature and sustainability. Arguably, these two paragraphs indicate a relatively sufficient coverage of

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[20] The object clause of the School Act: § 1. The municipal primary and lower secondary education must, in cooperation with the parents, give the pupils skills and capabilities which (…) contribute to their understanding of human's relation with nature (…). Subsection 2: The municipal primary and lower secondary education must develop working methods and create frames for experience, contemplation and enterprise, so the students develop insight and imagination, and build confidence in own capabilities as well as a foundation for taking position and acting. Subsection 3: The municipal primary and lower secondary education should prepare the students for participation, responsibility, rights and duties in a society with freedom and democracy (…)

[21] The object clause has had its current form since 2006 (ME, n.d.7), and the sentence "Pupils' understanding of human's relation with nature" was added in 1993 (Thejsen, 2009).

[22] The fur topics revolve sustainable production, sustainable energy supply, future water supply, and emission of substances (ME2).

[23] Each subject has a subject purpose, four overall competence objectives, and 104 instructive skill- and knowledge objectives (EMU, n.d.1).

sustainability in the subject purpose of biology.

However, when considering the related skill- and knowledge objectives of biology, the focus on sustainability is significantly less visible. Here, the terms sustainability and climate only appear five times within the 104 objectives, e.g. "The pupil has knowledge about the climate's influence on ecosystems" (EMU, n.d.1). Hence, there is a lack of consistency with regards to the priority of sustainability between the overarching purpose of biology and its many objectives.

Further, this prioritisation of sustainability to be part of the natural science subjects reflects Scavenius and Rayner's critique of climate reductionism for being a technical question about natural science solutions in contrast to the sustainable transition as a polycentric challenge (2018: 6).

Knowledge objectives

Another related critique is that of the knowledge-focused nature of the objectives. Despite a broad focus on pupils' abilities to explain and apply models, which is arguably in accordance with Wolf et al.'s pluralistic approach (2017: 3), one can criticise these objectives for being pre-determined, i.e. feeding into Biesta's notion of *learnification*. Moreover, the objectives have a predominate focus on knowledge. In biology, 52 of the 104 objectives are concerned with acquiring knowledge about something. Whereas abilities to examine, discuss, collect data, connect, and evaluate figure less frequently – *discuss* only appears six times just as *connect* appears only once. It seems that the pupils are primarily supposed to learn *how the world is*, which according to Freire ignores the pupils as cognitive actors and rather educates them to become reproducers of status quo (Freire, 2005: 86). There are no objectives regarding creating, developing or changing, and it appears that there is no focus on action competence. These are the basis of the pluralistic approach to sustainability (Wolf et al., 2017) and oblige an experience-based and pupil-centred approach to learning, making room for action by the pupils (Kolb, 2015).

In the light of Scavenius and Lindberg's call for a focus on social and political structures in the response to the ecological crisis, the frames of the MPLSE subjects do not seem as "action-supporting contexts" (2018: 70). In this regard, one teacher criticised that action competence is not valued in the school and is absent in exams: "It is not a focus at all. There is nothing about conducting or doing anything" (T5)[24]. She problematised the lack of focus on "how creative you are, how good you are at selecting ideas and carrying out those ideas" (T5). Neither is there much focus on practice in the subjects, as it was the case in the discontinued subject woodwork (T9).

The same argument is relevant when considering the previous-mentioned second paragraph of the subject purpose of biology; despite revolving around responsibility and action towards sustainability, appearing like Freire's recipe to critical consciousness, it is difficult to see the purpose translated into the underlying objectives. It is neither specified how the pupils' responsibility towards nature is supposed to be developed nor how the pupils are supposed to gain confidence in their own decision-making and action regarding the SD.

[24] Indicates that it is quoted by Teacher 5 (T5).

5.1.3 Sustainability only in the upper years

Another relevant point is that the natural science subjects are only taught in LSE (the last three years of MPLSE). As this research only engages with LSE, teachers from lower years have not been interviewed. However, several of the interviewed teachers were not aware of any engagement with sustainability in the lower years, e.g. "When I get the pupils in 7th grade (…) they don't know anything. It is brand new to them" (T9). This indicates that sustainability is not prioritised thoroughly in the long-term education of pupils, as it is arguably neglected in the lower years.

5.1.4 Not prioritised in humanities and social science

When examining subjects within humanities and social science, sustainability is essentially not included. In social science the only suggested engagement with sustainability is following two objectives,

> The pupil has knowledge about sustainable development and economic growth
> The pupil can account for issues and opportunities regarding sustainability and economic growth (EMU, n.d.2).

Again, the focus on knowledge is predominant, just as the inclusion of sustainability is solely dealt with from an economic growth perspective, criticised by Scavenius and Lindberg for being an unsound approach to political challenges (2018: 72). In this regard, the interviewed social science teachers also criticised ME's lack of priority of sustainability in social science (T10), (T8), (T5).

Besides prioritising sustainability in the individual subjects, ME could likewise have prioritised it as a cross-disciplinary theme. It has e.g. been politically prioritised to make IT/media, language development, and innovation/entrepreneurship three themes that saturate all subjects (ME, n.d.2). One of these themes could have been sustainability.

Indeed, it is understandable that sustainability is not the key focus of all subjects, as the school has many other purposes than educating pupils politically and ethically. Also, since the term of sustainability is only 30 years old, hence teaching in *de facto* sustainability is possible without using the phrase explicitly. However, the post-2015 idea of sustainability as being something that saturates all aspects of society, arguably stresses the relevance of engaging with it in humanities and social science as well. This is further emphasised by Wolf et al. with their notion of sustainability as being inherently holistic (2017: 3).

ME's limited priority of sustainability to natural science subjects arguably has its point of departure in a narrow perception of sustainability, mirroring the notion of climate reductionism. By limiting sustainability to the faculty of natural science, it seems reduced to a question of greenhouse gas emissions, energy, natural resources and the like, and not a question of social and cultural behaviour, philosophy of values and the good life, psychology of habits, etc., which are part of the causes to the problem.

5.1.5 PISA over critical consciousness

According to Illeris' utopian misconception, the MPLSE cannot deal with every problem in the world and priorities need to be made. Hence, what is on the school timetable supposedly reflects what is considered most important. With the latest reform it was decided to earmark

respectively 630 and 450 hours to Danish and Mathematics in LSE, whereas subjects as biology and social science are only allocated 150 and 120 hours (ME, n.d.3). This political priority is criticised by several teachers (T3), (T4), (T5), (T6), and appears to reflect a focus on PISA tests[25]. This priority is problematic as it removes time from other subjects, e.g. the discontinued subject *time of the class*, which gave time to social issues and character development (T10).

With Carlile and Jordan's emphasis on learning as involving the whole mind (2005: 20) it is indeed criticisable with a narrow focus on technical knowledge. Several teachers agree that pupils today are not educated holistically (T10). E.g. "They might become the most caring citizens, but if they don't learn the rules of comma…" (T8), again indicating the predominant focus on technical knowledge. Excluding some knowledges as being irrelevant is arguably problematic in an era of crisis initiated due to a narrow focus on few fields of knowledge, among other tings (Ciplet et al., 2015: 179). Thus, it appears that ME prioritises knowledge measured in PISA tests over aspects of critical consciousness, such as citizenship and character development.

The selection of knowledge further reflects a neoliberal governance of education, where learning is valued through its utility, and not in itself, criticised by Mangez and Hilgers for relying on external policy-oriented forces (2012: 192). This micro-management is further present in the high quantity of pre-determined learning objectives, criticised by Biesta for being undemocratic learnification (2009: 16). The teachers and pupils' limited co-determination appears paradoxical as the MPLSE's object clause aims at educating to responsibility and action. Competences as self-dependence, responsibility, and creativity are arguably difficult to develop through lesson plans, which the pupils are forced to follow, revealing a utopian misconception (Illeris, 2015: 273).

Moreover, there is little room for taking into consideration pupils' different interests and abilities. According to one teacher, the MPLSE's increased academic focus[26] makes some pupils experience "on-going failure in Danish, just because they are not good at analysing" (T6). Hence, the teacher questioned whether all pupils necessarily need to learn the same. In this regard, Illeris problematises how the increased external requirements[27], expectations[28] and control[29] potentially result in insecurity about whether one is good enough (2015: 116). Such insecurity arguably undermines critical faculty, creativity and action.

Thus, ME's proclaimed focus on action competence seems undermined by the primary focus on external forces.

5.2 Political priorities at municipality level

While ME plays a key role in defining the objectives of the MPLSE with regards to sustainability, MC's political priorities determine how these can be operationalised in the MPLSE.

5.2.1 Sufficient focus on sustainability

According to the interviewed municipal politician, the Committee's current work concentrated on the overall objective of making the grade average rise at all MPLSE in the municipality (MC1). E.g. by allocating resources to talent courses for particularly skilled pupils, and to intensive courses for particularly challenged pupils (MC1). Sustainability was not mentioned.

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[25] The PISA tests concern language (reading), mathematics and natural science (OECD, n.d.)
[26] The reform in 2013 had an increased focus on Danish (reading) and Mathematics (ME, 2013: 7).
[27] In the form of mandatory and instructive subject objectives
[28] With the reform 2013, pupils in LSE are expected to be educated corresponding to 9th grade in 8th grade, i.e. one year faster (ME, 2013).
[29] In the form of compared national tests

The interviewed municipal officer perceived, likewise the ME representatives, sustainability to be taken care of as "it is written in the object clause that the pupils shall be educated to a sustainable development" (MC2). Further adjusting that "it does not say sustainability, but relationship with nature" (MC2), hence revealing a narrow understanding of sustainability.

The MC officer criticised the term of sustainability as being rather undefined: "But sustainability about what? It can be quite fluffy. What it is supposed to be about? (…) I just think it is a bit difficult with education about sustainable development" (MC2), thus reflecting a scepticism towards changing any focus of the MPLSE until the purpose of engaging with sustainability is thought through.

Nonetheless, she argued that sustainability "is an agenda that MC takes seriously" (MC2), acknowledging that "I don't know if it is engaged with in the classroom, but there are many things young people have to learn during their school time" (MC2) – indirectly stating that it is not so important whether SDG target 4.7 (ESD) is worked with or not, as long as the SDGs are worked with in society in general. I.e. the MC officer did not regard MPLSE a central institution to the sustainable transition, revealing a perspective of climate reductionism.

When asked which competences the MC politician considered most relevant for the pupils to acquire in order to be able to participate in SD, she replied, "Democratically educated, critical thinking citizens, who can relate to and actively contribute to how to create a sustainable Denmark, a sustainable society and a sustainable world in every sense" (MC1). When asking for the committee's strategy for facilitating these competences, she argued that they are already reachable within the current frames (MC1). In this regard, both the MC officer and politician considered sustainability to be sufficiently covered in the current MPLSE.

5.2.2 Target 4.7 is mentioned, but not prioritised

Neither the MC politician nor officer knew about UNESCO's purpose of implementing ESD into all levels of education (MC1), (MC2). The politician further disconfirmed that the committee is working on an implementation of ESD into the MPLSE, but referred to one school (out of 70 elementary schools in MC) that works with the SDGs (MC1). This reveals a limited, sporadic focus on sustainability in the MPLSE of Copenhagen. Hence, sustainability seems to be a nice-to-have focus more than a top priority, just as the international work on ESD is not reflected in the national/regional political priorities.

Nonetheless, SDG target 4.7 is mentioned in the municipal action plan for implementation of the SDGs in Copenhagen, and concerns "knowledge about sustainable development" (MC, 2017: 19), put in practice by "hands on teaching around in Copenhagen with people at all levels, who work for a sustainable Copenhagen". The teaching is described to be focused on action competence regarding sustainability, i.e. "(…) through these activities children and youth will obtain knowledge, action competence and democratic values, so they can take ownership of the future sustainable city (…)" (MC, 2017: 19).

The acknowledgement of the necessity to learn about sustainability, the perception of learning as pupil-centred and the notion of teaching as being about empowering to action competence all seem somewhat in line with Freire's idea of problem-posing education. However, the overall objectives of MC regarding SDG 4 do not reflect the focus on action-oriented learning about sustainability. Instead, the objectives are in line with the ME focuses on results of national tests,

grades and wellbeing[30] (MC, 2017: 18). Thus, SDG target 4.7 is not translated into any broader objectives, and is, despite mentioned, not prioritised politically.

Open School

From the action plan it appears that MC engages with 4.7 by offering courses to interested teachers. This is operationalised through the concept of *Open School*[31], which is an attempt to include the local community in the teaching through external lectures and class visits (ME, n.d.11). The MC officer and politician both referred to Open School as an obvious way for the teachers to integrate sustainability in their teaching (MC1), (MC2).

However, similar to the critique of biology, Open School is also subject to a critique of being pre-determined and knowledge-based, i.e. learnification as it lacks room for pupil-centred action.

Open School is described by the teachers as rather fixed and limited to e.g. "culture tourist attractions in the city" (T7), and is not open towards local teacher and pupil-related initiatives. It is restricted to one-time interaction and does not allow for any thorough collaboration (T4).

Other teachers criticise the format for replacing the teacher with an expert: "I bring my pupils to e.g. an incineration plant and let some professionals say the same things as I say" (T9), (T3). In this regard, Open School also relies on the fact-based tradition (Borg et al. 2012) where pupils are told about how the world is, and are supposed to listen and watch, and not participate.

In this regard, Open School can be criticised for being an easy way to tick off having dealt with sustainability e.g. by visiting an incineration plant (T1), despite no actual engagement with the complexities, dilemmas, nuances or global connections of sustainability. For instance, one can question if an incineration plant is sustainable as it incinerates resources to a short-term good of heat (Seltenrich, 2013).

Hence, MC's way of prioritising sustainability in the MPLSE seems far from a consistent and pluralistic engagement with sustainability.

Teacher training

As SDG target 4.7 also revolves around teacher education, and the municipality supplies in-service training to teachers (MC2), a political priority of MC could likewise be to offer SE training. However, the MC officer doubted the demand as "there needs to be a demand and some money" (MC2). The MC politician confirmed that this is not prioritised (MC1).

5.3 Sub-conclusion

At ministry-level, sustainability is prioritised to some degree in the natural science subjects of LSE. However, it is difficult to see this focus translated into more concrete objectives. Likewise, the predominant focus on *technical knowledge* undermines a pluralistic and action-oriented approach. Neither is the prioritisation of sustainability holistic, as it is only engaged with in LSE's natural science subjects. Despite ME's proclaimed engagement with SDG 4.7, it does not seem as ME can live up to the SDG target 4.7's indicator[32] of "mainstreaming ESD at all levels" (UN, n.d.2).

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[30] The operationalised national objectives of the MPLSE concern 1) the amount of talented pupils in Danish and mathematics shall increase year by year, 2) the amount of challenged pupils with poor results in the national tests shall decrease year by year, 3) The wellbeing of the pupils shall increase (ME, n.d.9).

[31] Open school was initiated with the reform in 2013 (ME, 2013: 8).

[32] The extent to which (…) education for sustainable development (…) are mainstreamed at all levels in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment (UN, n.d.2).

At municipality-level, the engagement with SDG target 4.7 is not translated into any broader ambitions. Neither do the MC representatives express any need to adapt the MPLSE to the sustainable transition. Thus, sustainability appears rather like a crosscheck nice-to-have priority than an actual 2030 goal.

ME and MC's lack of prioritisation of common objectives for SE arguably places the responsibility for promoting sustainability in the MPLSE on the individual teacher. This finding indeed makes it relevant to examine the teachers' (experienced) room of manoeuvre regarding integration of sustainability as well as their way of making sense of sustainability, as it is arguably crucial for the *extent* to which sustainability is integrated, and the *way* in which sustainability is integrated. As sustainability appears far from fully integrated in the MPLSE, it is also relevant to dwell on the teacher-experienced barriers to SE. A2 engages with these questions.

Thus, whereas A1 demonstrated how sustainably is solely prioritised to a limited extent in some subject objectives, A2 looks into how the teachers perceive the proclaimed presence of sustainability and how they translate it into practice.

6) Analysis 2: Integrating sustainability education

A2 examines how sustainability is integrated into the teaching and school culture of MPLSE, and relies on the ten teacher interviews. By examining the teachers' experienced barriers to a fruitful integration of SE, A2 aims at illuminating how SE is (and is not) integrated at the schools. In this regard, both political and cultural barriers are emphasised, just as the teachers own attempts to teach sustainability will add nuances to the analysis.

6.1 Current sustainability-integration at the schools

Firstly, it became clear from the interviews that widely differing takes on sustainability were present in the MPLSE. It differed from school to school, and from teacher to teacher to what extent and how sustainability was approached. As such, an overall problem seems to be the lack of a centralised conception and common objectives for integrating sustainability into the MPLSE. Instead it appears left to the teachers to decide how to move forward. A great part of the teachers pointed at themselves as the ones who were driving the change (T1), (T5), (T9), (T2).

Two of the teachers reported about no focus on sustainability at all – neither by the teachers nor by the school management (SM) – expect from their own attempts: "It is by and large none-existing. We are two teachers, who consider it an interesting topic" (T9), (T2). Other teachers pointed to an increase in sustainable consciousness and hinted to smaller projects as collection of waste (T4) and boycott of single-use plastic cups (T6), (T4), but still not any strategic implementation. Sustainability is treated as one of many topics and is dealt with in a limited amount of time, e.g. in feature weeks (T4) or through continuous use of Open School offers (T10). Other teachers used LSE's electives to offer thematic subjects about e.g. global issues (T8), (T1), (T4). However, these arrangements have just been impeded by the latest political reform, which decreased the freedom of electives (ME, 2019: 7). One teacher problematised that "now they take our profile courses and turn into fixed electives. That means my 60 sustainability lectures in a school year are reduced to 30" (T1), (T6). Thus, the teachers' self-determination of content e.g. through electives has recently been further restricted.

The interviews revealed several barriers to a fruitful integration of SE. The barriers can be identified as respectively 1) political barriers, hereunder, time-related, resource-related and structural barriers, and 2) cultural barriers in terms sense making of sustainability and teaching traditions in relation to respectively critical consciousness and action competence. Examination of the barriers gives insights to how SE is integrated just as it provides perspectives on how to overcome these and ultimately promote SE at the schools.

6.2 Political barriers

6.2.1 Time-related barriers

Too little preparation time

From the interviews it became clear that the preparation time affects the teachers' fundamental room of manoeuvre with consequences for their possibilities for integrating sustainability. Only one teacher with reduced working hours did not consider preparation time a challenge (T9). On average, the teachers told that they had 10-20 minutes[33] preparation time for each lecture (T1), (T3), (T4), which "includes everything" (T4). According to the teachers, the time needed to prepare ideal teaching was rather 50/50 between teaching and preparation time (T3), (T4), (T5). With more time, the teachers could "create more differentiated teaching and more interesting courses" (T1). Hence, the limited preparation time presents a key barrier to integrating new focuses, such as sustainability, just as it undermines quality education.

Time pressure results in overloaded teachers

The limited time combined with the comprehensive subject objectives results in a fundamental time pressure for the teachers. This creates stressed teachers, e.g. "These days, one experiences periodic break-downs (…), because the pressure is so intense" (T10). When asking the teachers how to integrate sustainability into the MPLSE many did not know, as they could not cope with more political mandatory objectives, but neither had time to do it themselves – e.g. "I don't know (…), because we are under great pressure in the day to day work, so we would be stressed if it is forced down politically" (T3), (T2). Another teacher explains how her colleagues are demotivated when she suggests ways of engaging with sustainability: "People become very tired, because we generally are so stressed" (T4).

Hence, the lack of time affects the opportunities and willingness to engage with a new topic as sustainability.

Open School requires time

The Open School offers (see 5.2.2) were criticised for being an information overload, which the teachers did not have time to consider (T8), (T4). Thus, MC's sustainability-related offers appear to drown in several mail offers and catalogues. The teachers further problematised that Open School requires much time, flexibility and coordination due to fixed school timetables (T6). Leaving the school half-a-day puts time pressure on other subject lectures. "You get very unpopular among your colleagues if you use Open School several times a month," one teacher pointed out (T4).

Thus, Open School is subject to a time-barrier as well, and bears witness to how it is not

[33] with one exception of 30 minutes due to a bipartite contract of being Profile Coordinator (T5), however, reporting that it is far from enough (T5).

possible to add sustainability to an unsustainable school system.

Only time for tests and exam content

The teachers further presented a dilemma between their own perceptions of what is important to teach relative to what is required from ME, MC and SM. One teacher added to this consideration; "There are a lot of tests (…) on how the schools are doing (…). So my boss will look at how well my class are doing in reading and the school will be ranked after it" (T4). Hence, pointing to the pressure and indirect steering of the content of the teaching towards a focus on tests and exams. Essentially, this makes topics as sustainability and competences as action-competence a waste of time, as they are generally not measured in the MPLSE. Thus, the school system is not supporting non-measurable competences and topics outside of the test curricula.

This bears witness to a system sought to be managed by market principles, e.g. by weighting competition higher than community (Scavenius, 2013). According to Biesta, this neoliberal learnification approach risks blurring the sense of values and purpose of the school (2009: 29), which is arguably the case when prioritising reading tests higher than the sustainable transition.

In this regard, several teachers experienced that the practice-dimension of the subjects are cut to the bone, as there is not time allocated to experience-based learning, e.g. "They need to have an explorative approach (…). It is not possible if we are sitting in the classroom (…). We need to get out there [pointing out of the window], but we do not have the opportunity" (T3). In terms of seeing knowledge as inseparable from action and environment (Carlile & Jordan, 2005), it seems absurd to skip the connection to the reality, contributing to schooling being isolated from practice in reality.

Thus, lack of time results in limited possibilities for making the teaching current, stimulating and meaningful, which appears to be a great barrier to integrating sustainability into the established subjects. Further, it reveals how the political priorities affect the teachers' opportunity for integrating sustainability negatively.

Several teachers described how they spend their spare time in order to include sustainability, e.g. "Every year we prioritise to take an overnight stay [in the nature], despite the fact that we don't have the resources to do it. It sounds bad to say that we work for free" (T1).

It is indeed problematic with a system that relies on the teachers' passion and willingness to work for free in order to create varied, quality education, including a topic as important as sustainability. This arguably leaves sustainability to be a topic that only the most passionate and socioeconomically advanced teachers engage with.

Time pressure results in short-term responsibility

It appears that the same steering is evident for the SM. According to several teachers the SM is a mirror of the national policies' focus on "wellbeing, increased technical education, better grades" (T1), and day-to-day operation (T9), (T2), (T6). Several teachers described how there is no surplus time or energy to deal with abstract, long-term issues as sustainability, since practical challenges take up all the time. Another related point is that sustainability is arguably "difficult to relate to" (T2), (T6), hence pointing to a barrier of operationalisation of sustainability in a school context with limited time and capacity.

Several teachers described how the SM is positive towards the teachers' sustainability initiatives. However, the SM did not take initiative themselves as it considered SE a teaching-

related question (T1), (T2). Thus, sustainability is not considered a school problem that needs to be solved, but rather a personal teacher interest.

The lack of responsibility taken by the SM arguably reflects an unsustainable school system, emptied from democratic co-determination. This could be criticised by Scavenius for contributing to a loss of institutional capacity (2013), demonstrated by the teachers' limited possibilities for taking ownership of their teaching.

6.2.2 Resource-related barriers

No priority of in-service training

Another significant barrier for integrating sustainability in the MPLSE appears to be the fact that teachers are not educated to teach in sustainability in the first place, as SE is not part of the teaching education. Whereas some of the teachers did not feel equipped to teaching sustainability (T2), (T4), (T6), some of those who did feel well-equipped appeared to have a relatively simplistic understanding of sustainability. E.g. one teacher pointed to "the small percentage of the emission that is from individual consumption" (T8), hence neglecting the role of the individual in the sustainable transition.

Furthermore, a few teachers considered sustainability [by many interpreted as climate change] a complex and heavy topic to teach and tiring by the pupils due to its dismal prospects (T4), (T8). The teachers further considered sustainability a political and value-based topic, which makes it a difficult topic to approach, as it inevitably involves one's own opinions (T6) and confronts the teachers with their positionality as teachers (T8). Hence, there appears to be a need for offering in-service training in SE to the teachers.

Nonetheless, only one of the ten teachers had been offered sustainability-related training (T5). The majority reported that it is not an opportunity, pointing to cost savings and other resource priorities (T4), (T3), further describing how training would be at their own cost and spare time, pointing to the burden placed on the individual teacher if they want to take sustainability seriously in their teaching profession.

Instead, several teachers engage with sustainability in their teaching through own interests, life experiences (T9), (T7) and by following the media (T10), (T8). This autodidactic approach reveals rather different approaches to sustainability, which will be elaborated on in 6.3.

6.2.3 Structure-related barriers

The teachers also pointed to the physical and structural environment of the school as a barrier to integrating sustainability. Some point to the issue of unsustainable facilities and school infrastructure, arguably making teaching in sustainability subject to *cognitive dissonance*[34] – e.g. teaching about reuse of resources, but having no waste sorting (T3), (T4), (T9).

Others regarded the common school structure of large classes per teacher problematic, as it limits the opportunities for pupil-centred and experience-based teaching (T2). It also makes it difficult to create quality teaching outside of the classroom, which requires teamwork (T4). Generally, the school structure of isolated classes and subjects is seen as a barrier for teaching an interdisciplinary topic as sustainability: "The school is very divided into subjects and schedules, which is a challenge" (T5).

[34] Cognitive dissonance can be described as the condition, when a person has two inconsistent thoughts (Norgaard, 2011: 67), and involves feelings about being able to affect the world around you (ibid.: 90).

Also, many teachers pointed to limited knowledge about what other teachers engage with at other years and at other schools, e.g. "Actually, I don't know how much they work with it in the pre-preparatory school and middle school" (T8), (T6), (T3), revealing little collaboration. The teachers articulate a lack of knowledge sharing between teachers across subjects and years, and a lack of transparency and flexibility in the school system (T6). To put this in perspective, the schools with the greatest engagement with sustainability were also the schools with the most collegial collaboration, involvement of the SM, and where restructurings had been made in order for a cross-level strategic engagement with sustainability. In addition, the school that appeared furthest with an actual strategic integration of sustainability had close dialogue with the municipality too, revealing how collaboration across the different areas of responsibility regarding MPLSE appear crucial for a proper integration of SE.

6.3 Cultural barriers: Teaching sustainability in practice

This part of A2 investigates how sustainability is conceptualised and approached by the teachers. It aims at determining whether a pluralistic approach to sustainability is present (Wolf et al., 2017), whether an experience-oriented approach is considered (Kolb, 2015), and whether critical consciousness is fostered (Freire, 2005).

6.3.1 Critical consciousness

Since the teachers play the key role with regards to educating the pupils in sustainability, their perceptions on how sustainability is achieved educationally – in terms of competences the pupils should acquire – are in particular interesting. These ideas will firstly be considered with particular focus on their implications for *critical consciousness* as one of two main aspects of the pluralistic approach to teaching methods (Wolf et al., 2017).

Even though the teachers were consulted because of their engagement with sustainability, it turned out that several teachers had engaged with sustainability to a very limited extent (T2), (T4), (T6) and only one of the teachers knew about ESD. Moreover, those who expressed to teach sustainability regularly appeared to have rather differing perspectives on sustainability.

When asking the teachers which competencies they considered the most important for pupils to acquire in order to be able to contribute to sustainable development, the most common answer revolved around *understanding* the problems and global connections, e.g. "Understanding that if we continue to live as we do now it has some consequences" (T6). One can question whether it is enough to understand the problems and solutions, as criticised in A1. However, the teachers' focus on understanding did not solely appear as a focus on *knowledge as facts*, but also encompassed other aspects of learning, such as dialogue, reflection, critical faculty and co-determination. These elements were highlighted by most of the teachers and are arguably fundamental parts of the pluralistic approach to teaching methods that fosters critical consciousness (Wolf et al.). E.g. one teacher stressed, "To teach about sustainability is important too, but it is just as important to wake their own interest and give them competencies to acquaint themselves with it" (T2). Likewise, social competencies were generally highlighted such as "humanity, empathy and sympathy" (T10).

Nonetheless, some teachers revealed[35] a rather moral approach to sustainability, advocating preaching about right behaviour (T9), e.g. considering sustainability to be about learning "how much meat can I eat, how long baths can I take" (T9).

Further, there likewise appeared to be a discrepancy between the teachers' pluralistic perceptions of competences and how these were fostered in practice. Few stressed the importance of creating a "haven to reflect about what they want" (T8), i.e. space for the pupils' opinions, decisions and imaginations to grow freely without a teacher-steering format, which both Freire and Kolb highlight as important for pupils' perception of themselves as critical beings and knowledge producers (Freire, 2005), (Kolb, 2015). However, others had not considered how to actually foster critical consciousness (T9), (T2), and some simply pointed to conversation (T8).

Thus, despite a high degree of pupil-*recognising* perceptions of learning among the teachers, the approaches to learning did rarely seem to be pupil-*centred*. In the light of Freire's banking concept of education, as long as the pupils are not co-participants in the teaching's knowledge production, the pupils' become reproductions of status quo (2005: 73). Thus, one can argue that today's teaching still upholds a perception of education as being about teaching pupils the facts about how the world is (2005: 71). According to Freire, this fosters uncritical pupils, who are alienated from their own decision-making (2005: 85). This disengagement is described by some of the teachers as "they [the pupils] do not think themselves, I need to think for them" (T3), (T9), describing the pupils as careless and non-autonomous.

This approach to learning, where pupils assimilate teachers' knowledge and skills would minimally require well-educated teachers in SE, who can be role models and inspiring examples for the pupils regarding sustainability. However, this seems not to be the case.

Overall, while some teachers did focus on critical consciousness, this emphasis appears inconsistent, which constitutes a cultural barrier to integration of SE.

6.3.2 Action competence

From the interviews, it seemed that action competence, as the other of two main aspects of the pluralistic approach (Wolf et al., 2017), was less pointed out in the teachers' perceptions of competences for SD. Instead the teaching in sustainability centred around a theoretical, verbal approach, thereby not including experience-based learning (Kolb, 2015). E.g. "I think that when you teach theory it is more effective than when you teach practice. Think of all the time you have to spend on transportation" (T9). Hence, the effectiveness of the teaching is measured in time and not in learning outcome, revealing an illusion of a convergence between what is taught and what is learned, i.e. the psychological misconception of learning (Illeris, 2015). It further reveals how the neoliberal governance of the education system is not only a political barrier, but also a cultural barrier.

Still, several teachers disconfirmed the traditional teaching method, where the teacher talks and the pupil listen (T3), (T4), (T1). In this regard Freire's teacher-student dichotomy of passive-active roles (2005: 80) do not significantly seem present. However, one can question to what extent any of the involved parts are active, if active is to be understood as "re-creation of knowledge through common reflection and action" (2005: 69). E.g. one of the teachers described

[35] As I have not made participant observation or in depth interviews with the teachers about their teaching methods, this interpretation of the teachers' teaching methods rely solely on their descriptions of their teaching, and could be elaborated on with more appropriate methods.

an example of a normal teaching situation as, "We are sitting in the classroom and reading something or watching a documentary and reflecting about it" (T8). Another teacher describes how pupils can learn to act by reading, watching and reflecting about fictional figures' opinions in a text (T7), seeing action competence as achievable through a teacher-chosen text and despite the absence of pupil action.

One can question whether reading, watching and thinking are active or passive undertakings. As an old saying state, reading and watching are arguably failing attempts to learn, as learning requires trying it out oneself,

> I read and I forget
> I see and I remember
> I do and I understand

Few teachers pointed to the notion of action competence, whereas only one teacher called for a progressive focus on action competence throughout MPLSE (T5). Only few teachers mentioned practice-experience and hands on knowledge as important competences, e.g. "That they [pupils] can apply their knowledge" (T3). This is particularly an issue in theoretical and verbal subjects, such as Danish, which one teacher try to "make is a practical as possible. We produce a podcast and then we look at it analytically; how to use one's voice, how to organise the preparations. I think it is important that it is the pupils that create something" (T2). These lonely examples stress the importance of facilitating the pupils' creative powers and overall promoting practice-experience, which Kolb regards important for creating in-context action (2015: xviii), and Freire regards crucial for learning to take responsibility for change (2005: 36).

With only few teachers problematising the lack of action-oriented teaching, it seems that Freire's notion of the banking concept of education to some extent is reproduced uncritically. Teaching today may not take form as the old school approach of recording, memorising and repeating (Freire, 2005), however, it does not seem to be much focused on making the pupils critically applying knowledge and skills in reality either.

From this, one could argue that the teachers' inherent perceptions contribute to shaping the integration of sustainability in terms of teaching methods, arguably in a way that does not fully foster critical consciousness or action competence, i.e. the pluralistic approach to teaching methods necessary to fruitfully integrate SE (Wolf et al., 2017). Indeed, the teachers' perceptions are part of a broader societal culture of certain attitudes towards sustainability and teaching, but these should also be regarded in relation to the teacher education and the possibilities for SE in-service training, mentioned in 5.2.2 and 6.2.2.

6.4 Sub-conclusion

While A1 illuminated an absence of holistic political prioritisation of sustainability in the MPLSE as well as a lack of SE-supporting frames, it appears that the integration of SE at school level is also neglected and remains insufficient.

First all of, A2 found that the school system suffers from managerial steering and severe time- and resource restrictions. Hence, time-related barriers undermine quality education and leave the teachers with little opportunity for integrating a new and abstract topic as sustainability.

Furthermore, the barriers for integration further included school structure, facilities and lack of collaboration. Here, A2 revealed that SE requires more adaptation than simply teaching about sustainability, and that SE cannot be simply introduced to an unsustainable and under-prioritised school system with lack of collaboration. In this sense, the lack of support and collaboration appears a main barrier, e.g. in terms of SM support and collegial knowledge sharing. The structural barriers were further exemplified with the initiative of Open School, which the teachers could not benefit from due to inflexibility of the system.

Finally, cultural barriers of engagement with SE and teaching methods were also found in A2. Here, the current (though limited) integration of SE appeared primarily driven by few passionate teachers. Arguably, this de facto placement of responsibility of SE at the teachers' shoulders (which will be discussed in 7) is problematic since the teachers are not trained in SE. This became evident as the teachers' autodidact SE-teaching did not fully encompass critical consciousness and action competence, which more of the teachers considered crucial, but did not appear to practice.

Overall, A2 points to the need for more time/resources and better working conditions, re-thinking of structures and more collaboration, as well as training of teachers in order to provide the necessary conditions for integrating SE at the school level.

7) Discussion: Responsibility for sustainability

This chapter looks into the placement of responsibility for promoting sustainability in the MPLSE with the aim of discussing the revealed barriers and potential solutions.

7.1 Neglect of responsibility

As pointed out in A1, MC and ME already consider sustainability, action competence and critical consciousness part of the objectives of the MPLSE. Thus, they are arguably not taking responsibility for any rethinking of the MPLSE, as they consider the current school system to fulfil its purposes. This can be criticised for not taking the ecological crisis seriously by approaching it only with climate reductionism.

Nonetheless, it seems that ME and MC even regard promotion of sustainability a responsibility of the individual school and teachers due to decentralisation. Despite ME's responsibility for national development of the teaching in subjects and topics (ME, n.d.5), and MC's responsibility for allocation of resources and setting the political direction for the schools (ME, n.d.1), the interviews revealed how both ME and MC to a high extent considered it a school responsibility. E.g. "It is a Danish tradition to give the teachers great freedom to choose the content" (ME1), and "I think the school management has a great responsibility for (…) setting a direction for what is important at the individual school" (MC2), suggesting that it is up to the individual school whether sustainability is important to prioritise or not. In other words, an institutional response of the MPLSE to the sustainable transition is not considered necessary.

A2 likewise revealed that many of the teachers were the ones driving the integration of sustainability at their school, reporting about the SM being a mirror of the national politics and busy with day-to-day operations. Furthermore, the SM considered sustainability teaching-oriented and thereby placing the responsibility on the individual teacher. Many teachers felt

stressed by their working conditions and perceived the political priorities and structures to challenge their room of manoeuvre with regards to integrating SE. As only passionate teachers seemed to engage with sustainability for that reason the placement of responsibility for promotion of sustainability at the teachers does not seem fruitful.

In this regard, ME and MC can be critiqued for not creating supporting contexts for the teachers to engage with SE.

Relying on a CR approach to structure-agency, ME and MC arguably do have a key responsibility for integrating SE as the political priorities affect the teachers' opportunities for taking responsibility. Likewise, a phenomenon can never be reduced to the individual (Sayer, 2000: 17). With the notion that power and responsibility goes hand in hand, the placement of responsibility (in practice) of a topic as important the sustainable transition at the individual teacher seem like a grey area in an opaque school system. As sustainability is not part of the teacher education, it seems naive of ME to assume that the teachers by themselves include sustainability. Neither as sustainability is prioritised only to a limited extent in the subject objectives.

Further, it must be the responsibility of ME to address SDG target 4.7 in the overall direction of the MPLSE, which obligates ME to "mainstream ESD at all levels in national education policies, curricula, teacher education, and student assessment" (UN, 2017). A1 shows how this responsibility is not taken.

The lack of (holistic) engagement with sustainability by ME and MC, and the argument that the schools have the responsibility can thus been seen as an avoidance of responsibility at the political level.

7.2 Centralisation or decentralisation

7.2.1 No responsibility for change – a structure-agency problem

It seems that the responsibility for adapting the MPLSE to the sustainable transition has no clear placement, and appears difficult to determine in a school system that is partly centralised (in terms of many predetermined subjects objectives), partly decentralised (in terms of the teachers' freedom to choose methods and arranging the teaching – as long as they reach the objectives).

Sustainability and the threat of the ecological crisis are arguably issues that none of the involved are educated in or sufficiently qualified to engage with; the teachers are not educated in SE content and pluralistic teaching methods, MC and SM in how to create the adequate frames, and ME in how to include it holistically in terms of content nor in how to promote political ambitions and priorities that allow for pluralistic teaching-methods. As SE is rather teaching-oriented, the most obvious place for the responsibility becomes at the teachers' desk. However, as A2 revealed, the topic of sustainability is complex and is not solely about teaching, but likewise about the frames, facilities, culture and structures. Integrating SE on paper or as a point of discussion is one thing; another thing is for the school to adapt to the sustainable transition in terms of changes in culture, structures and physical facilities. This arguably requires more than a single passionate teacher. Thus, sustainability is a polycentric challenge, which requires multi-level governance (Scavenius & Rayner, 2018: 2).

ME and MC's neglect of responsibility arguably reflects a system where responsibility for versatile and current development is forgotten in the name of the all-important focus on grades and international comparison. It reveals a school system, where the responsibility of the

involved stops with the national objectives, focused on increase of pupils' grades and wellbeing, but not on overall development of the school. The basic focus on lifting the pupils' competences and wellbeing are arguably important focuses in a school in crisis, however, the reform's inefficiency (see 2.2) appears an indicator of the inefficiency of the neoliberal management of the school system. The fact that the expenses spent on educating pupils in the MPLSE are the same in 2007 and 2017 (Dohm, 2019) raises the question if fixing the problems is possible without an increase in resources.

In a school system tightened to the limit, the teachers' predominant responsibility becomes to teach according to the objectives, and the SM's predominant responsibility becomes to run the school's day-to-day operation. Any visionary long-term development or strategies are not valued or measured, and thus becomes of second order. As time is an issue, second priorities are rarely dealt with. Thus, in the current school system sustainability becomes a voluntary, personal interest more than a crucial function to make the school run. For an adequate integration of sustainability, it seems that the school system needs a re-prioritisation of resources as well as perception of responsibility to include long-term responsibilities as well. In all regards, it seems that MC and ME's proclaimed teacher freedom is somewhat illusive. Arguably, the freedom of the individual teacher is not supported by the sufficient frames to realise it. In this regard, it appears that the intended freedom and flexibility by decentralisation does not work as intended.

7.2.2 Structural or cultural change – Individual freedom or universal approach

Is it even a school responsibility?

One can question whether sustainability is even a school responsibility, as the MC officer questions, "To what extent is it a personal responsibility and to what extent is it some structural things that need to be changed?" (MC2), arguing that it indeed has an impact that young people take responsibility and confronts older generations. The fact that the MC officer questions the municipality's as well as the school system's responsibility indicates that placement of the responsibility should be at the individual, here the pupils. However, this argument seems flawed in the light of the current school climate strikes *Fridays for Future*[36], where pupils are requiring more climate and sustainability at the school timetable and calling for adults to take responsibility and respond to the sustainable transition (Andersen, 2019). Another example being the new movement of teacher students, *Teachers for Future*[37], which is demanding sustainability to become part of the curriculum and object clause of the MPLSE as well as the teacher education. Hence, one can argue that bottom up SE initiatives do exist, though these are so far not listened to politically.

Top down or bottom up

Besides the question of responsibility for SE in terms of centralisation/decentralisation, one can question whether SE is integrated most fruitfully into the MPLSE by a top down or bottom up approach.

A centralised top down approach to SE might have the advantage of ensuring and controlling that all pupils get holistic and pluralistic SE, by standardising SE as mandatory national objectives, and letting it saturate all subject objectives. This is arguably the easiest and fastest approach too, which is not an irrelevant factor when dealing with the urgency of the ecological

[36] The Danish Fridays for Future organisation: www.klimastrejke.org
[37] The Danish Teachers for Future organisation: www.facebook.com/Teachersforfuturedenmark

crisis. Nonetheless, as found in A1 and A2, the intended objectives are not per se actualised in practice. More importantly, it removes the co-determination from teachers and pupils, crucial for a pluralistic approach to SE, and thus, risk taking shape as a fact-based or normative approach to SE.

From the findings in A2 it seems that many teachers have mistrust in MC and ME, and do not consider more top down objectives for the teaching or SM a solution. Nonetheless, they do not consider a voluntary bottom up approach preferable either, as it places all the responsibility at a few passionate teachers. In this regard, one can argue that a bottom up approach is not fully possible within a centralised system with the little co-determination at the individual schools. Moreover, as several teachers report about only few sustainability-engaged colleagues, a bottom up approach might take a generation to foster, as culture is changing slowly.

A fully decentralised bottom up approach would as a minimum require restructuring of the teacher education, more preparation time, and equal valuing of all knowledges and competences. With SE-educated teachers, a bottom up approach might place the whole responsibility at the individual teacher. However, as found in A2, the political and personal dimensions of sustainability makes it a topic difficult for the teachers to grasp, and arguably a topic that requires collaboration rather than individual freedom. According to the German philosopher Hannah Arendt freedom takes place between people, and can collectively be exercised to change society (Strarup, 2018a: 107).

Hence, it seems that both a centralised top down approach and a decentralised bottom up approach to SE would require changed structures and frames of the school system. The following paragraphs will look into the arguably inhibiting structures of cross-sectorial collaboration.

7.3 Collaboration in an opaque system

As found in the analysis, there seems to be a gap between the political intentions, policy documents and the reality at the schools, revealing a lack of collaboration between administration and practitioner. The school is a vast system and full transparency is arguable not possible, however, one can question the sufficiency of the current amount of collaboration between school and administration. Several teachers have never met or been in contact with neither the school board, nor the representatives from the municipality (T6), (T9).

Despite the fact that MC might feel relatively locked with their opportunities for resource allocation within the fixed budget decided upon by ME, it still seems from A2 that some teacher-experienced barriers are due to lack of collaboration and can be changed, e.g. unsustainable facilities as lack of waste sorting.

If SE is to be integrated fully it requires cross-sectorial collaboration and responsibility. As the negotiations about teachers' working conditions is placed in the municipal department of economy (MC2), and the responsibility of the teacher education is placed in Ministry for Further Education and Research (Uddannelses- og forskningsministiet, 2012), the political prioritisation of sustainability in the MPLSE requires cross-municipal and -ministry collaboration and responsibility.

Further, it arguably requires stronger collaboration within and between the individual schools. As found in A2, one of the barriers for integration of SE was the inflexibility of the school system in terms of schedules, isolated subjects and classrooms. Many of the teachers did not know much about what the pupils learned in the previous years, nor what other teachers engaged with at their own or other schools, arguably making a bottom up sustainable movement difficult. Further, A2 revealed that the school with the most collegial collaboration, which also had a cross-level strategic engagement with SE, also were the school where SE appeared most profoundly integrated.

Thus, a collaboration-oriented restructure of the arguably fragmented and isolated school system that is currently focused on individual learning in isolated subjects, might better support a common and interdisciplinary school response to the sustainable transition.

As found in A2, some of the barriers to integration of SE were time, lack of expertise, and lack of support. Aspects of these barriers are arguably possible to overcome through collaboration.

7.4 Findings in perspective: Sustainability objectives are not enough

This thesis' findings appear recognisable to similar studies in Scandinavia, where teacher-experienced barriers to integrating SE and placement of responsibility appear to be a general debate. Wolf et al. criticise a lack of focus on sustainability in practice in the teacher educations in Finland, which leaves the teachers challenged with integrating sustainability at the schools (Wolf et al., 2017: 1). Borg et al. (2012) find that despite positive attitudes towards SD, Swedish upper secondary school teachers feel challenged regarding integration of ESD due to lack of time, lack of expertise, lack of inspiring examples, and lack of support from the SM (2012: 198). This arguably validates this thesis' findings for being general challenges with SE.

These findings are relevant for this research, as the Swedish curriculum and steering documents state explicitly that all teachers in all subjects have a responsibility for integrating a holistic perspective of SD in their teaching (2012: 186), emphasising a pluralistic approach to SD (2012: 190). Thus, this study shows that making sustainability a requirement for each subject is not enough. Further training in ESD, knowledge sharing and collaboration with the SM are needed for a proper integration. Borg et al. conclude that change needs to be seen as a collective, collaboratory task (2012: 203).

Thus, it appears that rethinking the school structures, offering training, making room for collaboration, change of political priorities and visions, and more resources are all important to overcome the identified barriers and fruitfully implement SE in the MPLSE. In other words, rethinking the very basis and purpose of the MPLSE system to be in line with the current needs of society. Reforming the school system is not enough.

7.5 Further discussion: Methodological reflections and future research

This methodological discussion reflects upon the findings in the light of the research focus, and sheds light on which other focuses that could have nuanced the findings and could be relevant to examine in future research.

An implication of the methodological choices is the predominant focus on teachers' experiences, which possibly has resulted in the rather one-sided conclusion of lack of political responsibility. More engagement with the public authorities might have resulted in more nuanced findings on barriers and responsibility, including other reflections on teacher responsibility.

Secondly, this thesis has analysed teaching approaches through interviews. One can argue that the method of participant observation would be more adequate for such a purpose, as there is not always correspondence between what is said and what is done.

To nuance the question of the integration of SE further, it would be adequate to engage with **random teachers**, who do not consider sustainable issues a personal interest. As this thesis concludes that the integration of SE is primarily driven by passionate teachers, it raises the question of to what extent sustainability is engaged with at schools with none sustainability enthusiasts. Attempts to integrate SE and sense-making of sustainability might look rather differently at schools that do not know about the SDGs.

An examination of teachers in the **lower years** of the MPLSE could also have nuanced the question of how SE is integrated, as the subjects, learning objectives and teaching methods for younger pupils differ remarkably.

Inclusion of the **pupils**' perceptions of sustainability and their trust in themselves as cognitive actors and responsible subjects for taking action would be a crucial point of research to evaluate the intended teaching. One can argue that as this thesis has not engaged with the actual teaching neither the voices of the pupils, it makes the same mistake as ME and MC by assuming that the intended school arrangement and content focus works in practice per se.

In this regard, the field of **psychology** becomes relevant, as LSE pupils and pre-preparatory pupils cannot make sense of the complexity of sustainability and the *ontological security*-threatening[38] aspects of the ecological crisis in the same way. Thus, a psychological take on sustainability could strengthen the pluralistic approach to SE further.

This thesis further came to find the **SM** a key actor due to their power and responsibility to decide on the frames of the school, i.e. influencing on the school response to the sustainable transition. For further research on the institutional capacity of the MPLSE's response to the sustainable transition it appears crucial to engage profoundly with the SM and school board of directors.

Concluding a need for collaboration, this thesis' findings reveal a need to look into existing sustainability school networks. E.g. one teacher explained how getting *The Green Flag*[39] made SE a project involving the whole school, creating identification and proudness across subjects and years (T1).

That being said, by empirically exploring the role of sustainability in education through the lens of teachers as well as ME and MC, this thesis contributes with several perspectives, which lays the foundation for further research.

7.5.1 Delimitations

ESD and the general perception of sustainability in UN framework can be criticised for being fundamentally anthropocentric in the sense that it relies on a belief of co-existence of growth

[38] Anthony Giddens describes ontological security as the confidence in the constancy of the social and material surroundings and continuity of one's self-identity. Norgaard argues that global crises such as climate change threaten individuals' and communities' ontological security (Norgaard, 2011: 81).
[39] Green Flag was initiated in Denmark in 1990s, and concern teaching in environmental sustainability. The network is part of the international network Eco-Schools (Friluftsrådet, n.d.).

and protection of nature, cf. the economic, social and environmental focus of the SDGs. I.e. ignoring the relative contradiction of the term sustainable development. This thesis dissociates with an anthropocentric perspective on sustainability.

Moreover, ESD can be seen as a top-down approach encouraging to fixed best-practice implementation that can further be criticised for its underlying issues of coloniality, by coming to present an universalistic approach and solution, which the rest of the world should implement without being heard.

However, acknowledging that there is no right way of approaching sustainability, knowledge-sharing and collaboration can be helpful in an integration and adaptation process to something as complex and abstract as sustainability. Despite not immaculate, ESD is a tool that pushes ME and MC to take SE seriously.

8) Conclusions

This thesis has emphasised the critical role of education to foster a long-term sustainable transition of society. Questioning the reasons for the relative absence of sustainability in the Danish MPLSE, it has sought to understand how sustainability is prioritised politically and integrated in the Danish MPLSE system.

Considering the first sub-question of political prioritisation, it is concluded that the prioritisation of SE is limited and not holistic. In this regard, A1 found that sustainability is only present in natural science subjects in the LSE, reflecting Scavenius and Rayner's notion on *climate reductionism* (2018), where solely technological solutions to greenhouse gas emissions are emphasised, largely ignoring the social, cultural, political and institutional capacities and necessities to contribute to the sustainable transition.

Moreover, even in this limited prioritisation there is a dissonance between the stated political purposes, the underlying subject objectives and the predominant focus on technical knowledge and tests. The limited priority of SE appears a result of the neoliberal governance of education, which favours external interests such as international tests over non-measurable, community-oriented competences and learning that involves the whole mind, considered necessary for SE. In this regard, the political priorities also undermine a pluralistic approach to sustainability, as pupils are not given co-determination of their learning, which arguably hinder development of critical consciousness and action competence, and thereby reproduces Freire's *banking concept of education* (2005).

Regarding the second sub-question of integration at the schools, it is found that several political and cultural barriers hinder a fruitful integration of SE. In this regard, A2 found that managerial steering and severe time-related political barriers undermine the possibilities of teaching in sustainability. Also, political barriers in terms of an inadequate school structure, counter-productive facilities and limited possibility for collaboration across subjects and years hinder integration of SE.

Cultural barriers such as a prevailing school tradition of fact-based approaches to education were also found to hinder a pluralistic approach to SE. Combined with a lack of political priority of opportunities for SE teacher training, it appeared that only passionate teachers with special interests in sustainability engaged with the topic, all while these teachers' autodidact SE-

teaching did not fully encompass critical consciousness and action competence, i.e. a pluralistic approach to sustainability.

Lastly, this thesis has discussed where the responsibility for promoting sustainability in the MPLSE system should be placed, finding that the proclaimed decentralisation of the MPLSE results in lack of political responsibility taken by MC and ME. In this regard, it is found that the relative freedom of the individual school is not of much value, as the complex and abstract topic of sustainability appears to rather require close collaboration. Further, the politically under-prioritised school system reveals little institutional capacity, as there are no time and resources for the teachers and SM to take responsibility for the school and engage with short term as well as long-term challenges.

To overcome the identified barriers and implement SE fruitfully, this thesis suggests a necessity of change in terms of (1) organisational change and restructuring that foster collaboration and shared responsibility between teachers, SM, municipality and ME, (2) school visions that include SE, and are reflected in the subject content as well as school frames, e.g. in terms of action-promoting teaching plans and sustainable facilities/infrastructure, (3) allocation of resources to the schools to support the task, e.g. increased preparation time and opportunity for SE training. ME and MC hold the responsibility for changing this. Only if these changes occur, we can expect the teachers to live up to their responsibility of providing quality education with a holistic inclusion of sustainability issues through pluralistic teaching approaches.

References

Andersen, S.P.D. (2019, 22 May). Sæt klima på skoleskemaet! *Folkeskolen.* Retrieved 14 July 2019 from: https://www.folkeskolen.dk/660279/saet-klima-paa-skoleskemaet?fbclid=IwAR0AdcIVR_wEbIhoh8Dx3KIBA9KfXXfeXxn_mFEEyc4drSQ3Is-y750tHiA

Biesta, G.J.J. (2009). *God uddannelse i målingens tidsalder – etik, politik demokrati* [Good Education in an Age of Measurement: Ethics, Politics, Democracy]. Aarhus, DK: Klim.

Bhaskar, R. (2010). Contexts of interdisciplinarity. In Bhaskar, R., Frank, C., Høyer, K.G., Næs, P. & Parker, J. (edt.). *Interdiciplinarity and Climate Change. Transforming knowledge and practice for our global future*. Pp. 1-24. London, UK: Routledge

Bjerril, S. (2016, 8 June). Nye besparelser på vej: De sidste tre år har været spare-år. *Folkeskolen*. Retrieved 10 July 2019 from: https://www.folkeskolen.dk/589202/nye-besparelser-paa-vej-de sidste-tre-aar-har-vaeret-spare-aar

Borg, C., Gericke, N., Höglund, H., & Bergman, E. (2012). The barriers encountered by teachers implementing environmental education for sustainable development: Discipline bound differences and teaching traditions. *Research in Science and Technological Education,* 30:2, pp: 185-207.

Bryman, A. (2012) [2001]. *Social research methods.* 4th edt. NY: Oxford University Press.

Carlile, O. & Jordan, A. (2005). It will work in practice but will it work in theory? The theoretical underpinnings of pedagogy. In: O'Neill, G., Moore, S., McMullin, B. (Eds). (2005). *Emerging Issues in*

the Practice of University Learning and Teaching. Dublin: AISHE. Pp. 11-26.

Ciplet, D., Roberts, J.T. & Khan, M.R. (2015). *Power in a Warming World: The New Global Politics of Climate Change and the Re-making of Environmental Inequality.* London, UK: The MIT press.

CONCITO (n.d.) Klimaambassaden. Den Grønne Rygrad. Retrieved 8 August 2019 from: https://concito.dk/gronne-rygrad

Crouch, D. (2018, 1 September). The Swedish 15-year-old who's cutting class to fight the climate crisis. *The Guardian.* Retrieved 15 July 2019 from: https://www.theguardian.com/science/2018/sep/01/swedish-15-year-old-cutting-class-to-fight-the-climate-crisis

CSR (2018, 9 August). Klimaeksperter: Vi er blevet mere klimabevidste. *CSR.dk.* Retrieved 15 July 2019 from: https://csr.dk/klimaeksperter-vi-er-blevet-mere-klimabevidste

Danmarks Lærerforening (2013, October). Lov 409 – Udvalgte regler. Retrieved 25 June 2019 from: https://www.dlf.org/media/962619/dlf_Lov409-pdf.pdf

Danmarks Radio (2019a, 31 January). Debatten. Retrieved 3 April 2019 from: https://www.dr.dk/tv/se/debatten/debatten-9/debatten-2019-01-31#!/

---------- (2019b, 16 March). Deadline, (13:12). Retrieved 3 April 2019 from: https://www.dr.dk/tv/se/deadline/deadline-10/deadline-2019-03-16#!/13:12

Danmarks Læringsfestival (2019, 13-14 March). Program. Retrieved 14 March 2019 from: https://danmarkslaeringsfestival.dk/udstilling-oplaeg/gratis-oplaeg-d-13-marts/ and: https://danmarkslaeringsfestival.dk/udstilling-oplaeg/gratis-oplaeg-d-14-marts/

Dohm, K. (2017). Er folkeskolen i krise eller topform? Folketingsvalg. *Jyllandsposten*. Retrieved 10 July 2019 from: https://jyllands-posten.dk/premium/indland/ECE11351199/er-folkets-skole-i-krise-eller-i-topform/

EMU (n.d.1) Biology. Retrieved 10 July 2019 from: https://www.emu.dk/grundskole/biologi/faelles-mal

---------- (n.d.2) Social science. https://www.emu.dk/grundskole/samfundsfag/faelles-mal

Fadel, C., Bialik, M., & Trilling, B. (2017 [2015]). *Four-dimensional education. The competencies learners need to succeed*. Center for Curriculum Redesign.

Freire, P. 2005 [1970]. *Pedagogy of the oppressed*. NY: Continuum.

Friluftsrådet (n.d.). Grønt Flag. Retrieved 9 August 2019 from: http://www.groentflag.dk/interne-sider/groent-flag/eco-schools.aspx

Grundtviansk Forum (n.d.) Grundtvig. Retrived 9 August 2019 from: https://grundtvig.dk/grundtvig/who-is-grundtvig/grundtvig-on-education-politics-church/

Hansen, J. L. (2013, 5 September). Skal bæredygtighed på skoleskemaet? *Dagbladet Information.* Retrieved 30 January 2019 from: https://www.information.dk/indland/2013/09/baeredygtighed-paa-skoleskemaet?vwo_exp_badges=|30|31|5180|

Illeris, K. (2015). Læring. Frederiksberg, DK: Samfundslitteratur.

---------- (2016). Læring I bæredygtighed – et opgør med konkurrencestaten. In Melgaard, S. Holten-Andersen, J. & Jensen, A.G.C. (eds.) 2016, *Livet efter væksten – Samfundsvisioner i en omstillingstid*, pp. 71-82. DK: Hovedland.

IPCC (2018) Global Warming of 1.5°C. Retrieved 14 July 2019 from: https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/sr15_headline_statements.pdf

Kolb, D.A. (2015). Experimental Learning: Experience as the source of learning and development. US: Pearson Education, Inc. 2nd ed.

Kvale, S. (2007). *Doing Interviews.* London, UK: SAGE publications, Ltd.

Municipality of Copenhagen (MC) [Københavns Kommune] (2017). Hovedstaden for bæredygtig udvikling: Københavns Kommunes handlingsplan for FN's verdensmål. Retrieved 22 June 2019 from: https://www.kk.dk/sites/default/files/uploaded-files/verdens_maal_cph_fin-ilovepdf-compressed_0.pdf

Larsen, T. M. (2019, 6 March). Studerende kæmper for grønt pensum. *Djøfbladet*. Retrieved 3 April 2019 from: https://www.djoefbladet.dk/artikler/2019/3/fremtidens-ledere-skal-vide-mere-om-klimaet.aspx?fbclid=IwAR2jdirv7fyRf6taIZ7ALockLTXCl397nsO0pjc2BDlh3KBBTm5Fy0kot3c

Læssøe, J. (2016). Den sovende kæmpe – uddannelse og læring som en del af bæredygtig omstilling. In: Melgaard, S. Holten-Andersen, J. & Jensen, A.G.C. (eds.) 2016, *Livet efter væksten – Samfundsvisioner i en omstillingstid*, pp. 97-108. DK: Hovedland.

---------- (2009, 2 December). Klimakrise kalder på uddannelsesreformer. *Dagbladet Information.* Retrieved 6 April 2019 from: https://www.information.dk/debat/2009/12/klimakrise-kalder-paa-uddannelsesreformer

Læssøe, J., Illeris, K. & Maclean, K. (2016) Bæredygtig dannelse – fra oven eller fra neden? In Melgaard, S. Holten-Andersen, J. & Jensen, A.G.C. (eds.) 2016, *Livet efter væksten – Samfundsvisioner i en omstillingstid*, pp. 109-115. DK: Hovedland.

Maclean, K. (2017, 5 April). *Duemosesamtalerne* (recorded lecture). Retrieved 28 February 2019 from: https://duemosegaardsamtalerne.dk/video-arkiv/karen-maclean/

Mangez, E. & Hilgers, M. (2012). The Field of Knowledge and the Policy Field in Education: PISA and the Production of Knowledge for Policy. *European Educational Research Journal* 11, no. 2: 189-205.

Norgaard, K.M. (2011). *Living in Denial: Climate Change, Emotions, and Everyday Life*. Cambridge, MA: MIT Press.

Organisation for Economic Co-operation and Development (OECD). (n.d.). PISA. Retrieved 5 July 2019 from: http://www.oecd.org/pisa/

---------- (2012). Public and private schools. How management and funding relate to their socio-economic profile. Retrieved 31 July 2019 from: http://www.oecd.org/pisa/50110750.pdf

Sayer, R.A. (2000). *Realism and Social Science*. SAGE Publictations, Ltd.

Scavenius, T. & Rayner, S. (eds.) (2018). *Institutional Capacity for climate change response – A new approach to climate politics.* NY: Routledge.

Scavenius, T. & Lindberg, M.R. (2018). The double gap between climate values and action. In Scavenius, T. & Rayner, S. (eds.) *Institutional Capacity for climate change response – A new approach to climate politics*, pp. 63-75. NY: Routledge.

SDG Index & Dashboard Report (2018, July). Global responbilities – Implementing the goals. *Bertelsmann Stiftung & Sustainable Development Solutions Network.* Retrieved 10 February 2019 from: http://www.sdgindex.org/reports/2018/

Seltenrich, N. (2013, 29 August). Is Incineration holding back recycling? *The Guardian.* Retrieved 14 July 2019 from: www.theguardian.com/environment/2013/aug/29/incineration-recycling-europe-debate-trash

Strarup, M. (2018a). *Hva' nu? – Dannelse til bæredyghed i børnehave, folkeskole og ungdomsuddannelse.* DK: Fjordager.

---------- (2018b, 8 November). Klimakrisen er et spørgsmål om dannelse. *Dagbladet Information.* Retrieved 6 April 2019 from: https://www.information.dk/debat/2018/11/klimakrisen-spoergsmaal-dannelse

The Ministry of Education (ME) [Undervisningsministeriet] (2013, 7 June). Aftale om et fagligt løft af folkeskolen [folkeskolereformen]. Retrieved 14 July 2019 from: https://www.uvm.dk/folkeskolen/folkeskolens-maal-love-og-regler/politiske-oplaeg-og-aftaler

--------- (2018a, 23 October) Lempelse af bininger. Retrieved 11 July 2019 from: https://www.uvm.dk/folkeskolen/fag-timetal-og-overgange/faelles-maal/lempelse-af-faelles-maal/lempelse-af-bindinger-i-regelsaettet-om-faelles-maal

--------- (2019, 30 january). Faglighed, dannelse og frihed - justeringer af folkeskolen til en mere åben og fleksibel folkeskole. Retrieved 11 July 2019 from: https://www.uvm.dk/folkeskolen/folkeskolens-maal-love-og-regler/faglighed-dannelse-og-frihed

--------- (n.d.1). Kommunens ansvar. Retrieved 7 June 2019 from: https://uvm.dk/folkeskolen/organisering-og-ledelse/den-kommunale-opgave/kommunens-ansvar

--------- (n.d.2). Fælles mål. Retrieved 11 July 2019 from: https://www.uvm.dk/folkeskolen/fag-timetal-og-overgange/faelles-maal/om-faelles-maal

--------- (n.d.3). Timetal. Retrieved 11 July 2019 from: https://www.uvm.dk/folkeskolen/fag-timetal-og-overgange/timetal

--------- (n.d.4). Uddannelsesstatistik. Retrieved 11 July 2019 from: https://uddannelsesstatistik.dk/Pages/main.aspx

--------- (n.d.5). Grundskolen. Retrieved 7 June 2019 from: https://www.stukuvm.dk/udvikling-af-fag-og-uddannelser/grundskolen

--------- (n.d.6). Elevtal i grundskolen. Retrieved 14 July 2019 from: https://www.uvm.dk/statistik/grundskolen/elever/kopi-af-elevtal-i-grundskolen

--------- (n.d.7). Folkeskolens formal. Retrieved 14 July 2019 from: https://www.uvm.dk/folkeskolen/folkeskolens-maal-love-og-regler/om-folkeskolen-og-folkeskolens-formaal/folkeskolens-formaal

--------- (n.d.8). Obligatoriske emner. Retrieved 15 July 2019 from: https://www.uvm.dk/folkeskolen/fag-timetal-og-overgange/fag-emner-og-tvaergaaende-temaer/obligatoriske-emner

--------- (n.d.9). Om nationale mål. Retrieved 2 August 2019 from: https://www.uvm.dk/folkeskolen/folkeskolens-maal-love-og-regler/nationale-maal/om-nationale-maal

--------- (n.d.10). Folkeskolens fag. Retrieved 2 August 2019 from: https://www.uvm.dk/folkeskolen/fag-timetal-og-overgange/fag-emner-og-tvaergaaende-temaer/folkeskolens-fag

--------- (n.d.11). Den åbne skole. Retrieved 10 August 2019 from: https://www.uvm.dk/folkeskolen/laering-og-laeringsmiljoe/den-aabne-skole

Finansministeriet (2018, June). Fremdriftsrapport på handlingsplanen for implementeringen af verdensmålene. Retrieved 10 February 2019 from: https://www.fm.dk/publikationer/2018/fremdriftsrapport-verdensmaalene

Thejsen, T. (2009). Folkeskolens formålsparagraf gennem tiderne. *Fagbladet Folkeskolen.* Retrieved 15 July 2019 from: https://backend.folkeskolen.dk/~/Documents/41/55841.pdf

Uddanelses- og Forskningsministeriet (2012, 1 June). Reform af læreruddannelsen. Retrieved 7 July 2019 from: https://ufm.dk/lovstof/politiske-aftaler/reform-af-laereruddannelsen/reform-af-laereruddannelsen

United Nations (UN) (1992). United Nations Conference on Environment & Development. Agenda 21. Chapter 36, pp. 320-328.

---------- (1987). Report of the World Commission on Environment and Development. Our Common Future.

---------- (n.d.1) Quality Education. Retrieved 11 July 2019 from: https://www.un.org/sustainabledevelopment/education/

---------- (n.d.2) SDG indicators. Retrieved 11 July 2019 from: https://unstats.un.org/sdgs/metadata/

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2012). *ESD – Building a better, fairer world for the 21st century*. Retrieved 4 July 2019 from: http://u4614432.fsdata.se/wp-content/uploads/2013/09/esd.pdf

---------- (2014, 10-12 November). Aichi-Nagoya Declaration on Education for Sustainable Development. World Conference, Aichi-Nagoya (Japan).

Wolf, L., Sjöblom, P., Hofman-Bergholm, M., & Palmberg, I. (2017). High Performance Education Fails in Sustainability? – A reflection on Finnich Primary Teacher education. In Jeronen, E. (2017) (edt.). *Teaching methods in science subjects promoting sustainability*. MDPI.

Figures

The Capital region of Denmark [Region Hovedstaden] (n.d.). Kommuner i Region Hovedstaden. Retrieved 7 June 2019 from: https://www.regionh.dk/om-region-hovedstaden/fakta/kommunerne-i-region-hovedstaden/Sider/Kommuner-i-Region-Hovedstaden.aspx

Danske Regioner (n.d.). Regional Denmark. Retrieved 8 August 2019 from: https://www.regioner.dk/services/in-english/regional-denmark

Appendices

Appendix 1: Sampling of empirical data

School geography and demography

- In total, ten teachers from eight different schools
- Seven teachers from six schools in the Municipality of Copenhagen
- Four different areas of Copenhagen: Vanløse, Brønshøj-Husum, Amager Øst, and Østerbro, including one teacher, who had just quit her job.
- Three teachers from two schools outside the MC, but in the Capital region of Denmark, in the municipalities of Herlev and Ballerup.
- Socio-economically, five schools were on average, one school was below average, and two schools were above average, measured based on grades and wellbeing by ME[40] (ME, n.d.4).

The maps below show where the Capital region of Denmark is located and where the three municipalities are located.

<u>The Capital region of Denmark</u>

Source: Danske Regioner (n.d.).

[40] As I do not regard these measurements of any significance in the findings, and neither advocate this kind of measurements I have not included the comparison of the measurements in an appendix.

The location of the three municipalities within the Capital region of Denmark

Source: The Capital region of Denmark (n.d.).

Teacher demography

- Five females and five males
- Six teach humanity subjects
- Three teach social science subjects
- Four teach natural science subjects
- One teach home economics[41]
- The two schools where two teachers were interviewed taught different subjects
- Age 27-63
- Educated between 1982 and 2017

In total, 19 teachers where contacted. Ten teachers responded and were all chosen for interviews. One teacher declined the inquiry, as she did not feel the right to ask, i.e. did not identify with being a teacher who tried to integrate sustainability in her teaching.

[41] In Denmark the subject homo economics is cooking classes and teaching about health and meals (ME, n.d.10).

Individual teacher characteristics

Teacher 1 (T1)
Date of interview: 1 April 2019
Municipality of: Ballerup
Age: 35 y/o
Subjects: Biology, mathematics, and English – at the *Globus* profile
Level of MPLSE: LSE
Educated: in 2007 in mathematics, English, Physics/Chemistry and physical education
Other job functions: Member of the school board + coordinator of the *Green Flag* programme

Teacher 2 (T2)
Date of interview: 2 April 2019
Municipality of: Copenhagen
Age: 27 y/o
Subjects: Danish, German, history
Level of MPLSE: LSE
Educated: in 2017 in Danish, German and physical education,
Other job functions: Class teacher

Teacher 3 (T3)
Date of interview: 10 April 2019
Municipality of: Herlev
Age: 45 y/o
Subjects: Mathematics, physics, biology and geography
Level of MPLSE: LSE
Educated: in 2012 in mathematics, physics, biology and geography
Other job functions: -

Teacher 4 (T4)
Date of interview: 10 April 2019
Municipality of: Herlev
Age: -
Subjects: Danish, English, art and religion
Level of MPLSE: LSE
Educated: in 2004 in Danish, English, art and religion
Other job functions: Member of a learning cooperative

Teacher 5 (T5)
Date of interview: 26 April 2019
Municipality of: Copenhagen
Age: -
Subjects: English and Global Perspectives
Level of MPLSE: LSE
Educated: in 1994 in English and physical education + 2x3 days course in Global Perspectives, paid by the school
Other job functions: Profile coordinator of the school's sustainability profile

Teacher 6 (T6)
Date of interview: 2 May 2019
Municipality of: Copenhagen
Age: 30 y/o
Subjects: History, religion and Danish
Level of MPLSE: LSE
Educated: in 2012 in History, religion and Danish
Other job functions: Contact person for the pupils' council

Teacher 7 (T7)
Date of interview: 6 May 2019
Municipality of: Copenhagen
Age: 53 y/o
Subjects: Danish and home economics
Level of MPLSE: LSE
Educated: in 2004 in Danish, art and home economics
Other job functions: Co-participating in development of school profile

Teacher 8 (T8)
Date of interview: 8 May 2019
Municipality of: Copenhagen
Age: -
Subjects: Danish, history, social science and the subject *Global*
Level of MPLSE: LSE
Educated: 2019, but worked at the school in 8 years. Are educated in science of literature.
Other job functions: -

Teacher 9 (T9)
Date of interview: 10 May 2019
Municipality of: Copenhagen
Age: 63 y/o
Subjects: Biology, geography and mathematics
Level of MPLSE: LSE
Educated: in 1982 in biology and physical education
Other job functions: Is allocated a few extra hours to teach about waste sorting

Teacher 10 (T10)
Date of interview: 21 May 2019
Municipality of: Copenhagen
Age: 38 y/o
Subjects: Danish, social science, history, religion, English and sometimes biology
Level of MPLSE: LSE
Educated: in 2008 in social science, English, Danish and biology
Other job functions: -

Appendix 2: Teacher Interview Guide

The framework for your teaching

1) Which subjects do you teach and in which years?

2) When were you educated and in which subjects?

3) How much preparation time do you have for each lesson?

a. How much preparation time do you need to do the teaching you want most?

b. Do you have opportunity to experiment with your teaching and try new things? (E.g. methods, topics, courses)

4) To what extent is it up to you as a teacher what the pupils are taught and how?

5) What are the key factors that influence what you choose / do not choose to teach?

Implementation of sustainability

6) To what extent is sustainable development part of the teaching of the different subjects at the different years at your school?

a. Have you discussed sustainability with other teachers or the school management?

7) To what extent do you experience that the school management and school board focus on sustainable development at your school?

a. Is it something new? / Why do you think they do not?

b. What do they then focus on?

8) Have you tried to include sustainable development in your teaching?

a. How?

b. In which subjects?

c. Have you included sustainable development in your teaching beyond what you have to according to the course's objectives?

9) To what extent do you feel equipped to teach sustainable development?

a. To what extent was education in sustainable development part of the teacher education when you graduated?

b. Do you know about the concept of Education for Sustainable Development?

c. What opportunities do you have for further training?

Teaching methods, competencies and challenges

10) Which competences do you consider to be the most important for the pupils to acquire, in terms of contributing to sustainable development?

a. How do you make teaching that puts these skills into play?

b. What challenges do you experience in making teaching that have these competences as the focal point?

11) To what extent do you experience that the current municipal primary and lower secondary education gives pupils an in-depth knowledge of climate change and the global environmental crisis?

12) To what extent do you feel that the current municipal primary and lower secondary education educates children to understand their co-responsibility and opportunities to influence community development in relation to the sustainable transition?

13) To what extent do you experience that the current municipal primary and lower secondary education educates children to be able to act in an uncertain future?

Political priorities

14) What do you experience is the main political priorities in the municipal primary and lower secondary education currently?

a. How is this expressed in the daily work of the municipal primary and lower secondary education?

15) To what extent do you experience that the political priorities in the municipal primary and lower secondary education reflect the societal challenges regarding the global sustainability crisis?

16) How should the municipal primary and lower secondary education be developed if it were up to you?

17) How do you think it is possible to get more teaching in sustainability into the municipal primary and lower secondary education?

Appendix 3: Municipality Interview Guide

Your context
1) What is your education background?

2) What do you work with on a daily basis?

3) How long have you been working in the Children and Youth Committee / Administration?

4) How much do you specifically deal with the municipal primary and lower secondary education in your work in the Children and Youth Committee / Administration?

The influence of the Children and Youth Committee / Administration on the municipal primary and lower secondary education
5) How do the Children and Youth Committee / Administration work with the operation of the municipal primary and lower secondary education?

> a) What influence does the Children and Youth Committee / Administration have on the content of teaching in the municipal primary and lower secondary education in the Municipality of Copenhagen?
>
> b) What influence does the Children and Youth Committee / Administration have on the form of teaching in the municipal primary and lower secondary education in the Municipality of Copenhagen?

6) What are the Children and Youth Committee / Administration's top priorities in running the municipal primary and lower secondary education?

> a) What are the Children and Youth Committee / Administration's main priorities in terms of the municipal primary and lower secondary education's development?

7) How would you describe the political direction of the Children and Youth Committee / Administration's operation of the municipal primary and lower secondary education?

8) What are the financial constraints in the operation of the municipal primary and lower secondary education?

On the implementation of education for sustainable development
9) Do you know UNESCO's concept Education for Sustainable Development?

> a. If yes, do you know that the decade 2005-2014 was devoted to implementing ESD of the UN?

10) In SDG 4 on quality education, target 4.7 specifically addresses education for sustainable development. Have the Children and Youth Committee / Administration worked with implementing ESD in the municipal primary and lower secondary education in Copenhagen?

11) To what extent do you experience that the individual school managements and school boards focus on sustainable development?

12) To what extent do you consider the amount of teaching in sustainability in the municipal primary and lower secondary education to be in accordance with the need for knowledge and action regarding the sustainable development of society?

a) Do you think there should be more mandatory education for sustainable development in the municipal primary and lower secondary education?

b) Which subjects should include a focus on sustainable development?

13) Which competences do you consider to be the most important for pupils to acquire, in terms of contributing to sustainable development?

a) What is the e Children and Youth Committee / Administration's strategy to facilitate teaching that strives to achieve these competencies?

b) In their work with ESD, UNESCO calls for learning competences such as critical thinking, the ability to imagine different future scenarios and collective decision making (UNESCO, 2012). Have the Children and Youth Committee / Administration tried to focus on these competencies in the running of municipal primary and lower secondary education?

14) UNESCO also calls for implementation of ESD in all parts of the education system and for teachers to be trained in how to integrate sustainability in practice teaching (UNESCO, 2012). Do you agree with this priority?

a) Do teachers have the opportunity to achieve further training? E.g. in ESD

b) Do you think that today's municipal primary and lower secondary education teachers are equipped to teach sustainable development?

16) What do you think are the major political barriers to a more pervasive implementation of education in sustainable development in the municipal primary and lower secondary education?

17) What do you think are the biggest cultural barriers to a more pervasive implementation of education in sustainable development in the municipal primary and lower secondary education?