Making a curriculum

A study of knowledge in Swedish School geography

Örbring, David

2021

Document Version:
Early version, also known as pre-print

Making a curriculum

A STUDY OF KNOWLEDGE IN SWEDISH SCHOOL GEOGRAPHY

David Örbring

Lund Studies in Educational Sciences 14

Many people have their own experience of school geography. Perhaps your memory of geography lessons is that you had to memorize all the rivers in a specific region, or gather facts about different countries. Or perhaps you made your own maps, which helped you to learn to analyze the landscape around you. These are examples of the aspects of geographical knowledge that are in focus in this thesis.

This thesis is a curriculum study in geography education. In four articles, the curriculum is studied as a policy document in the process of making a syllabus and in the classroom when teachers are using the curriculum. The first article elucidates learning progression in school geography. The second article analyzes different aspects of geographical knowledge in the geography syllabus. The third article examines and describes the process of making the syllabus in geography, with a focus on subject-specific abilities. The fourth article analyzes how teachers interpret the subject-specific abilities in their teaching.

With the aim of gaining insight into how geographical knowledge is recontextualized in different contexts, the thesis also contributes with a deeper understanding of the curriculum, which in turn can help teachers navigate as professionals.

LUND STUDIES IN EDUCATIONAL SCIENCES 14
ISBN 978-91-89213-27-2
ISSN 2002-6323

MAKING A CURRICULUM

Making a curriculum

A study of knowledge in Swedish School geography

DAVID ÖRBRING

LUND STUDIES IN EDUCATIONAL SCIENCES NR 14

Lund Studies in Educational Sciences may be ordered via Lund University:

www.ht.lu.se/serie/lses

e-post: skriftserier@ht.lu.se

The Joint Faculties of Humanities and Theology
Institution of Educational Sciences

Lund Studies in Educational Sciences
ISBN 978-91-89213-27-2 (printed publication)
ISBN 978-91-89213-28-9 (electronic publication)
ISSN 2002-6323

Cover: Johan Laserna
Layout: Media-Tryck

Printed in Sweden by Media-Tryck, Lund University, Lund 2020

Media-Tryck is a Nordic Swan Ecolabel certified provider of printed material. Read more about our environmental work at www.mediatryck.lu.se

MADE IN SWEDEN

To Ann-Sofie, Doris and Hilding

CONTENTS

ACKNOWLEDGEMENT

It has been a privilege to write a thesis in educational sciences with a focus on geography education. Many people have helped me in different ways. I want to thank you all. Without all participating people in the studies it would not have been possible, so thanks a lot for being onboard. Also, thanks to Lund University and the Department of Educational Sciences for giving me the opportunity to go on this journey.

My supervisors Roger and Tomas deserve a special thanks for always believing in me, supporting me and giving me great advice. The doctoral colleagues at the Department of Educational Sciences at LU, who have been such great colleagues and friends: Martin, Janna, Ämma, Katarina, Ingrid, Hans, Emil, Jonatan, Ylva, Malin, Helena,Tina, Paul and Colin. And Magnus, whom I miss a lot. Thanks also to Anders, Sinikka, Carina, Lotta, Karin, Ingrid, Kent and my other colleagues at the department at Lund University.

A special thanks to Ann Grubbström who did a great job as my opponent at the 90-percent seminar, giving very insightful comments that were helpful in finishing the process.

Working with LDK made me get to know Kristine Lund and I want to thank her for friendship and guidance. I want to thank Lotta Dessen Jankell for helping me understand my theories and shape my ideas. I am looking forward to future projects. A big thanks to Gabriel Bladh and Lena Molin who guided me into the field of geography education. Thanks also to the geographers at LNU, and all my new colleagues at Malmö University.

In several trips abroad I got to know many people whom have meant a lot to me and whom I also want to give a special thanks to: Xin Miao, Victor Salinas, David Lambert, Péter Bagoly-Simó, Clare Brooks and all in the GEODIS-project. Thanks also to everyone in the Committee for Geography Education in IGU for believing in me. And thanks to the other people that I met during conferences, trips and projects that I have not mentioned by name, it was a pleasure meeting you.

Thank you to Zlatan Idnert, Johan Öinert, and Tobias Andersson for your close friendship, involvement and closeness to me during the process of writing. Thank you, Johan Avendal for being a close friend and a good running partner. Also, thanks to all my other friends!

To my mom and dad … Mom, who raised five kids and we all feel very loved. I thank my mom for raising me to believe that I can do what I want, always supporting and involved and wanting and seeking to understand and support. My dad, who died in 2018, has been so important to me. I love and miss him so much. I really wanted him to be here when this thesis was completed. Agneta, my dad's wife and my stepmother, has also been very important in my life, developing my skills in analyzing literature and understanding life.

My grandma and grandpa, Britt and Nils-Ivar Örbring, have been vital in my life reaching the point of writing a thesis. Their involvement and encouragement have been essential for who I have become. I will never forget Britt's willingness to help people in need, her stubbornness, and sharp look at society. Britt and Nils-Ivar wanted me to do research before I knew what it was.

Thanks to: my little sister, Johanna Örbring, has always been by my side. Sven Lindell, who has been my extra brother and friend. My older siblings, Linda Andersson, Jörgen Karlsson and Mikael Karlsson are also a big part of me feeling loved. And thanks to my second family Eva Säbom, Janne Säbom, Per, John, Linn, Henny, Manfred and Elvy. And also, to my other relatives and family in Stockholm, Karlskrona and Örebro.

A special thanks to my beloved Ann-Sofie, always supporting me in what I want to do, makes wise suggestions, and of course always makes me laugh. And, to my children, Doris and Hilding, who have grown so much during this time. You are the best! I love you always!

PART I – SETTING THE SCENE

Introducing the study

The school subject of geography can include anything from memorizing the names of cities and countries to geographical analyses with a focus on spatial thinking. What constitutes a subject in school can also be expressed in different ways – in the curriculum, in the classroom, in politics and in discussions at home. Before, during, and after the revision of the curriculum and the introduction of the new curriculum in 2011, a lot happened with the subject of geography. The view of knowledge in lgr11 (the curriculum for compulsory school) is the same as in the curriculum from 1994, but new ways of relating to the view of knowledge were introduced. For example, subject-specific abilities were introduced in all subjects. These should be written in each syllabus, and thus also in the syllabus in geography. Thus, in the process of writing new syllabuses, a "new old" concept of knowledge would be used as an ability to highlight important knowledge/goals/objectives in each subject: new in the way of defining a new context, old in the way that it is filled with connotations in relation to previous use.

I worked at an elementary school when the new syllabus was introduced and became interested in the concept of subject-specific ability and what it implies for the subject of geography. It turned out that the answer was complicated and that, based on my experience, the teachers began to apply the abilities in slightly different ways. One teacher saw the abilities as something generic that could work on several subjects, while another saw it more as something specific that highlights different subjects. The possibilities for different interpretations of the teachers aroused my curiosity – what is the intention and what happens to the teaching of geography when policy is interpreted in different ways? However, it turned out that the intention also depends on the different stakeholders in the process of making the syllabus and abilities. This curiosity led me on the path that eventually became this thesis. The interest in knowledge in geography based on the understanding of how a curriculum is created and how teachers

interpret it can be placed in the research area of curriculum theory. At the same time, geography didactics and theories of knowledge are close at hand. The combination of these research areas discloses this study – a curriculum theoretical study of geography didactics.

Doyle (1992) presented different levels of curriculum theoretical research. The first is the institutional level and the second is the classroom level. According to Doyle, the first level is about the interaction between the school and the community, but this level also includes the design of the curriculum in the form of selecting content and goals. Doyle termed the latter part programmatic. The second level is the teacher's teaching and what happens when the teacher uses the curriculum. This dissertation can partly be placed at an institutional level, with an emphasis on the construction of the syllabus in geography, but also at the classroom level as it also investigates the teachers' experiences of the syllabus in geography. The focus is also on the relationship between the programmatic part and the classroom level, when it comes to how the teachers interpret the policy document.

Wahlström (2014) categorized curriculum theory studies into three different arenas, as compared to Doyle's two levels: the society arena, the governance arena, and the classroom arena. My research can mainly be placed in the governance arena and the classroom arena, and in the relationship between the two. However, the society arena will also be considered in terms of how the curriculum develops in relation to the society. Within and between these arenas it is possible to talk about a recontextualization (Bernstein 1990) of knowledge in geography. This is when teachers interpret the syllabus and teach the written words in the policy document. This is also when politicians, researchers, and other stakeholders compromise, discuss and choose what should formulated in the curriculum. In these processes, something happens to the subject of geography and I want to study what happens. I want to understand what a syllabus in geography is, how it is constructed, how it relates to scientific theories of knowledge in a discipline, and the teachers' interpretations of it.

The problem is that in both the governance arena, when the curriculum itself is written, and in the classroom arena, where teaching is based on the curriculum, compromises and conflicts arise that can lead to misunderstandings and important knowledge of geography being lost. By finding and highlighting these compromises and conflicts, I want to contribute to an increased understanding of what constitutes the subject of geography in school. This can also contribute to a deeper understanding of the curriculum and lead to professional development for teachers handling the curriculum.

Two earlier curriculum studies in geography education in Sweden – Molin (2006) and Wennberg (1990) – had a large impact on that field. Research articles that are close at

hand, such as Bladh (2020b), discuss the term curriculum in a setting of Swedish geography education. Other research of geography education in Sweden concerns different aspects of education and teaching geography that can sometimes also overlap with curriculum studies. The thesis includes a review of the research in geography education in Sweden that has been done. However, research in geography education in Sweden has not been done on a large scale, especially in terms of compulsory school and classroom studies. The present thesis can contribute in this area and be relevant in terms of conducting curriculum studies that have not been done in geography education on the current curriculum, and also for conducting research on geography education at compulsory school, which also is missing. In terms of international research in geography education, this thesis can contribute to the debate and discussion about geographical knowledge and how this knowledge can be recontextualized in different educational contexts.

During the last decade, researchers in the field of curriculum studies have studied the curriculum reforms of 2011 in Sweden, but not in terms of geography education. The present thesis can contribute in this area to set the research that been done about the curriculum reform of 2011 in a geography education setting.

Different concepts are used in different contexts to illustrate studies of the curriculum. The concept of subject didactics is related in the way in which the teacher works with the curriculum and how they interpret it, which also make this concept relevant. I am interested in curriculum study at both the micro and macro levels (Brooks 2006), both curriculum design and what can be linked to curriculum making. In both these processes, different stakeholders make choices and interpretations that can be derived from knowledge in geography. I am interested in these choices and interpretations and in how different interests and processes affect the outcome of the curriculum, both as a policy and in teaching.

Thus, the subject-specific abilities are a concept of knowledge that is introduced and filled with meaning, both in the steering documents (policy) and in the classrooms (teaching). The first two research questions are related to background and analysis of the syllabus for geography and subject-specific abilities in geography, with a focus on geographical knowledge and progression. The third and fourth questions focus on the construction of the syllabus. Finally, the last two questions focus on the teachers' experiences of their interpretations of subject-specific abilities.

Aims and research questions

The purpose of this dissertation is to gain insight into how subject knowledge and progression are highlighted in the geography syllabus for compulsory school. The dissertation also examines how the syllabus was created and how this process shows how a syllabus can be understood in view of zones of conflict, as well as how teachers experience the syllabus in their teaching (in years 7–9 for ages 13–16). I have sought to study what happens with the subject of geography by highlighting different processes and recontextualizations in the making of a syllabus and recontextualizations from written documents to teaching.

Research questions:

1) How is progression shown in the syllabus of school geography in Sweden?
2) What geographical knowledge, in terms of geographical thinking, geographical advantage, and spatial thinking, is implicit, explicit, or not included in the syllabus?
3) What did the process of making the syllabus in geography entail, from the perspectives of different stakeholders and emphasis on subject-specific abilities, and what zones of conflict can be acknowledged in that process?
4) How do different stakeholders describe their intentions with subject-specific abilities in geography and what consequences does this have for interpreting the policy document in school geography in Sweden?
5) How do geography teachers experience interpretation of subject-specific abilities in their teaching?
6) How can geographical knowledge be seen in relation to geography teachers' experience of subject-specific abilities in geography in their teaching?

My goals and research questions have been divided into four papers. The first three have been peer-reviewed and published; the fourth has not been sent for review, but will be in 2021. The four papers interrelate in terms of understanding geographical knowledge in different aspects and contexts of the curriculum, both as a policy document and the recontextualization in making the syllabus as a policy document and in relation to teaching the syllabus in the classrooms.

The first paper – "Paper 1: Sweden – Past Didactic Influence and Present Efforts to Create Learning Progressions" – is about how progression is projected in the subject of

geography in the Swedish school. The paper deals with Research Question 1 and provides a brief background to research related to this theme.

The second paper – "Paper 2: Geographical and Spatial Thinking in the Swedish Curriculum" – is a textual analysis of the syllabus in geography based on theories of what constitutes knowledge in geography; it deals with Research Question 2 and provides a background for the view of knowledge in Swedish schools and the structure of the curriculum.

"Paper 3: Subject-specific abilities – Formulating goals in geography in school" analyzes the making process of the curriculum in geography as a policy document and how different aspects of the process affect the understanding of the geography subject at school; it also addresses Research Questions 3 and 4.

Finally, the fourth paper ("Paper 4 – Swedish geography teacher's experiences of teaching with subject-specific abilities") deals with how geography teachers experience their interpretations of subject-specific abilities in their teaching and addresses Research Questions 5 and 6. The focus on subject-specific abilities came from the fact that these are new concepts for 2011 and that they should cover the purpose of the subject.

Outline of the dissertation

Setting the scene

This section introduces the topic of the dissertation, the purpose, and the research questions. This section also describes the research area within which my research for this dissertation can be placed. It also includes summaries and conclusions of the papers, as well as an outline of the entire thesis.

- Introduction
- Summaries and conclusions of the papers

Background

These sections comprise three chapters that provide a background for geography as a subject and the curriculum reforms in Sweden after 1994. They also present an overview of research concerning geography education in Sweden and an outlook of international research on geography education; and also place this research in relation to the field of geography education.

- The development of academic geography and school geography in Sweden
- Research in geography education
- Knowledge and reforms of the curriculum in Sweden after 1994

Theory

This section presents my theoretical points of departure are presented. They are also put in relevance to my research questions and to the aims of the dissertation.

- What is geography? Theories of knowledge in geography education
- Curriculum theory

Method and methodology

This section deals with method and my methodology in relation to the papers and the dissertation in its entirety.

- Method and methodology

Analysis and conclusions

In this section, I summarize and answer my research questions based on my results, analyses, and discussions. I also analyze and discuss the results in the different papers in relation to geography education and curriculum theory. The chapter ends with a summary of the thesis.

- Further analysis and conclusions
- Summary

Summaries and conclusions of the papers

The following is a brief summary of the four papers that together answer the questions. The compilations also draw conclusions. These conclusions and the content of the papers will be discussed later in the dissertation in relation to curriculum theory and geographic education.

Sweden: Past didactic influence and present efforts to create learning progressions

The paper discusses learning, progression, and assessment of knowledge in geography in Swedish compulsory school from year 6 to year 9. The paper is part of a larger international compilation focusing on how progression in the subject of geography is presented in government documents and schools in different countries. The starting points for the discussion in the paper are lgr11, steering documents, research on geography didactics in Sweden, and national tests in geography. The paper presents the research in geography education in Sweden that deals with the subject, with a focus on selective traditions. The paper also discusses results and reports on national tests and captures some problems linked to how progression in the syllabus is projected and can be perceived. One of the problems concerns the difference between epistemological and experienced approach (Carlgren 2009); that is, the theory (for example, syllabus) and expectations are not always the same as in practice in school, which may lead to the intentions of writing in steering documents not matching how the practice looks.

I wrote this paper together with Lena Molin. My contribution and writing were focused on analyzing how the learning progression in the syllabus of geography is presented in a Swedish setting.

Geographical and spatial thinking in the Swedish curriculum

This paper analyzes the Swedish geography syllabus, with focus on a content analysis of the subject-specific abilities in geography. The material being analyzed is text and documents. The paper contains an account of the view of knowledge in school, the basics of subject-specific abilities in geography and puts this in relation to theories of what is knowledge in geography and what differentiates geography from other subjects in school. Three theories have been selected to capture knowledge in geography: geographical thinking (Jackson 2006), geographical advantage (Hanson 2004), and spatial/geospatial thinking (Baker et al. 2015: 120) The conclusions are that a lot of what is included in geographical thinking and geographical advantage is implicit in the abilities, and also parts of spatial/geospatial thinking is implicit. Thus, it is included but expressed in an implicit way, which can have consequences in the teaching itself as it is dependent on the teachers' interpretations of the subject-specific abilities.

Subject-specific abilities – Formulating goals in geography in school

This paper contains a study of the process of creating a syllabus for geography; more specifically, the syllabus for geography for compulsory school 2011. The method and materials consist of interviews with stakeholders who have been involved in the making of the syllabus, formal and informal documents, material from the school's archives and mail exchanges. The analysis was conducted by examining how the process has progressed and what intentions different stakeholders have had in relation to subject-specific abilities. This led to five zones of conflict being distinguished, showing the conditions under which, the syllabus was created. The zones of conflict are: (1) political and science, (2) teacher experience and subject expertise, (3) diverse subject expertise and subject didactic expertise, (4) communication and steering, and (5) subject interests and generic interests. In the light of processes, intentions, and zones of conflict, knowledge of geography and geography didactics are discussed.

Swedish geography teachers' experiences of teaching with subject-specific abilities

This paper focuses on the teachers' experiences of subject-specific abilities. Thus, the focus is on the teachers' interpretations of the syllabus and the goals and objectives of geography teaching. The method of collecting data was semi-structured interviews based on video-stimulated recall in the form of recorded lessons by interviewed teachers. The teachers had to comment on their own teaching and were asked questions in the meantime. Based on the teachers' comments on their teaching, I have been able to gain different experiences of subject-specific abilities that can be linked precisely to the lessons filmed. Above all, 13 experiences of teachers' interpretation of subject-specific abilities can be discerned in the material, divided into two main categories: subject-specific experiences and generic experiences. In the first main category, five different results show different categories and, in the second category there are seven different experiences. Teachers can have a mixture of experiences to the same lesson, so the categories and the subcategories are not fixed and teachers can not be said to only have one experience. The results show that geographical knowledge that teachers include in their teaching is dependent on how they interpret the subject-specific abilities.

PART II – BACKGROUND AND CONTEXT

The development of academic geography and school geography in Sweden

In this chapter, I lay the foundation for how the school subject of geography has developed in Sweden and how the subject appears compared with geography in academia in the disciplines of human geography and physical geography.

Geography in academic disciplines

In academia, geography has developed in Sweden in a similar way as it has in many other countries. Some main directions (Cresswell 2013) have permeated the subject of geography in academic disciplines: natural deterministic geography, regional geography, quantitative geography, and humanistic geography. These are presented below. The likes of Peet (1998), Leat (1998), Bonnet (2008), and Cresswell (2013) have written about what is central to geography and geographical thinking.

Geography developed into a scientific subject during the 19th century. Prominent figures in that process were Alexander von Humboldt and Carl Ritter (Molin 2006), the former in connection with physical geography and Ritter more with human geography. Reforms in Germany led to the establishment of a geography subject within the academy. The Swedish Society for Anthropology and Geography (SSAG), which was formed in 1877, was a central part of establishing geography as a scientific subject in Sweden.

A nature-deterministic geography explains processes, such as human geography, based on natural conditions. This movement was especially strong in the late 1800s and early 1900s and also had influence on Swedish academic geography (Molin 2006). In that

way, a nature-deterministic tradition sets nature as a foundation for explaining human activities in and processes in the society (Peet 1998, Livingstone 2011).

At the beginning of the 20th century, geography was highlighted in building national identity in Sweden, both in school and in academia. Regional geography grew strongly (Bladh and Molin 2012, Molin 2006). Regional geography can have several meanings, but is traditionally a matter of describing places; that is, the focus has a descriptive character (Peet 1998). There is also a small amount of analysis and general explanations in this direction.

As a reaction to regional geography, quantitative geography grew strongly during the 1950s. Regional geography, with a focus on the idiographic, was often replaced by a search for general explanations (Peet 1998). Castree (2005) argued that just before and during this time, geography began to be divided into human geography and physical geography. In the 1960s, geography was split into two disciplines at universities in Sweden: human geography and physical geography (Bladh and Molin 2012). This also led to geography in various forms ending up in different departments and faculties. Wennberg (1990) noted that the institutional division and subject traditions influenced how subject-integrated geography was treated at universities.

In the early 1960s, humanistic geography had an impact on academic disciplines. The subject of geography was then given a more humanistic focus, which meant, for example, that mental maps and the different meanings of places become central aspects. In terms of humanistic geography, various branches emerged linked to politically radical geography, such as feminism, Marxism, and the environment (Peet 1998; Johnston 2015).

Castree et al. (2009) described the environmental geographical direction as integrated geography, when humanity meets the environment – a point somewhere between physical and human geography. Kramming (2017) was inspired by environmental geographical perspective in her research on environmental issues in schools. Harvey (e.g. 1989, 2016) has presented ground-breaking ideas about space and theories about human geography from a Marxist perspective. Feminist geography has been driven and represented by several researchers, such as Massey (1994) and Hanson (1995).

Pattison (1964) divided the development and directions in geography into four traditions, which were later developed by Graves (1982) and Murphy (2014). I go through these traditions in the following section.

Traditions of geography

Pattison (1964) had a significant influence on geography education. His four traditions of geography were an attempt to communicate geography between academic disciplines and school subjects and also inspired researchers in geography education in Sweden, such as Molin (2006) and Wennberg (1990). Pattison's (1964) four traditions are: The spatial tradition, connected to quantitative geography and spatial representations. The earth science tradition, connected to physical geography with a focus on natural processes. The man-land tradition, connected to the relationship between humans and the nature and land surrounding them. And, the area studies tradition, which focuses on regional geography.

According to Graves (1982), there is one more tradition, which emerged in the 1970s: a critical geographical perspective connected to humanistic research about, for example, exposing invisible power structures and driving societal change.

Murphy (2014) argued for a central contention of three overlapping themes in Pattison's traditions: spatial relationship, place characterization, and geographical context. He also claimed that the traditions have changes during the development of geography. The area studies are not so common anymore in research; the spatial tradition has been broadened and the man land-land tradition is more connected to other terms such as human-environment.

School geography in Sweden

According to Molin (2006), the relationship between the school subject and physical and human geography at universities is complex. Bladh (2020a) stated that there is a specialized and systematic form of geography that is often found in academic disciplines. There is also a tradition of working with geography in a synthetic way. This approach remains partly in the academic disciplines on a smaller scale, but it has gained importance in the school subject. There is a tension between these traditions, both within Sweden and internationally, where the tension is expressed when academic disciplines meet the school subject geography.

The cohesive school subject means that different academic disciplines must be brought together and transformed into a school subject. Different traditions in geography have had an influence on school geography, but not in any single-track way. Bladh (2020a) described that the curricula in geography are, among other things, a compromise of different traditions in geography. He also believes that the syllabus in geography (lgr11) that is valid in 2020 can be linked to an environmental geographical tradition, where synthetic geography also permeates the subject.

Wennberg's (1990) and Molin's (2006) dissertations also compile analyses of different reforms in school in Sweden and relate that to the history and development of school geography. To compile the historical course of curricula in geography, I start from Molin's (2006) division into three periods and supplement with research from Wennberg (1990), Olsson (1986), and Hennerdal (2015). While Olsson and Hennerdal's research had other foci, they also highlighted curricula in geography. The focus in the compilation below will be on how the subject of geography in school is linked to knowledge and traditions in geography. Molin (2006) divided the school subject geography into three periods: the first period (1840–1945), the second period (1945–1990), and the third period (1990–2005). The research questions in this dissertation have led me to continue what Molin started; thus, a new period in this dissertation follows in the conclusion chapter – the fourth period: 2005–2020.

The first period: 1840–1945

Molin (2006) stated that a factor that strongly influences the subject of geography in schools in the late 19th century and the early 20th century was nationalist currents:

> School was strongly influenced: strengthening the identity with the motherland was part of the general foundations of teaching and applied to school in general and the school subjects of history and geography in particular. (My translation, p. 91)

In the introduction of *folkskolan*,[1] geography was part of a dual subject where the other part was history. Molin (2006) noted that this affected how geography was presented. For example, geography had a greater historical focus than political focus. However, geography became independent during this period, in the lower stages (1895) and in the higher stages at 1909. Molin also noted that the first professorship in geography was introduced in parallel to this in Lund in 1897.

With inspiration from Humboldt and Ritter, Molin (2006) described that regional geography took place in the school's steering documents, primarily with a nature deterministic character initially. Molin argued that, in this way, the end of the 19th century was characterized by a regional geographical tradition, but was in turn influenced by natural determinism, which would later change. However, Molin believed that nature determinism characterized school geography teaching until the primary school reform in 1962, which has a special appearance in school text books. In the steering documents, however, another regional geography could also be included

[1] *Folkskolan* was a mandatory school form that was introduced in Sweden in 1842.

with influence from academic development of the subject of geography; here, Molin believes that a deductive approach and human and historical aspects became more important. What remained at this time was a causal connection that nature comes before culture.

Molin (2006) also stated that the map as a method was already present during the 19th century and has since followed the development of the subject. In this way, part of the subject of geography is about reading and understanding maps. Hennerdal (2015) also argued that influences or parallel activities about working with maps in relation to regional geography during this period can be explained as less descriptive even though this was central part of the geography education. Olsson (1986) also showed that nature determinism was a major focus in various school text books.

The second period: 1945–1990

The compulsory school and Sweden's first curriculum were implemented in 1962 (lgr62). According to Molin, this first curriculum was detailed, but the curriculum in geography did not differ much from those steering documents that had existed previously (1951). The focus was on regional geography and knowledge of countries. Molin described that nature determinism also characterized this syllabus in geography, which was discussed and attracted criticism during that time.[2] The author responsible for lgr62 was Lennart Dalén and Molin (2006) argued that Dalén's beliefs that school geography should be descriptive had a major influence on how the syllabus came to be.

Some major changes occurred in upper secondary school during the 1960s. A new subject emerged – civics – that also included human geography. Geography as a subject disappeared and did not come back to this level in school until 1994. Instead, physical geography was placed within another new subject, *naturkunskap* (nature science) (Molin 2006). Molin explained that the syllabus in upper secondary school was discussed among geographers, especially in the journal *Geografiska Notiser*[3] by authors such as Torsten Hägerstrand and Gunnar Hoppe, who considered that the proposal needed to be reviewed and revised. Other geographers supported these suggestions and thought that integrating geography into other subjects would have even more impact.

[2] Folke Lägnert (1952, 1953) and Gunnar Johnsson (1955) wrote articles that criticized the syllabus in geography.

[3] *Geografiska Notiser* is a journal for geography teachers in Sweden. Debates between geographers about geography education often have this journal as an arena for expression. Example of this discussion – (GN 1963:4).

Geography was still a subject in compulsory school and two new perspectives were introduced in lgr69 in a more general way: international perspective and awareness of the environmental issues (Molin 2006). However, these perspectives were not included in the geography syllabus (lgr69), even though it was integrated in the academic disciplines.

According to Wennberg (1990), the new geography linked to the spatial tradition (Pattison, or the quantitative geography in the middle of the 20th century) did not have much influence on curricula and teaching, even though, in the 1950s, it had a great impact in Sweden through the likes of Torsten Hägerstrand. Wennberg explained that teacher education and research in geography differed; regional geography has taken a large place in geography teacher education, unlike institutions of geography, where regional geography in that sense did not have much focus. However, Wennberg (1990: 105, my translation) also proclaimed that:

> Finally, my interviews with active teachers show that the subject's theories and idea development, insofar as they had encountered these in undergraduate education, had hardly left deeper traces in them. Sometimes such elements had even been met negatively.

And also:

> The teacher is also influenced by his own attitude to the subject, which in turn is based on his own experiences from school time and how the teacher sees his future role as a teacher.

Wennberg also stated that the teachers in his study did not know the syllabus very well, but relied to a large extent on school text books. In this way, the authors of the teaching aids become interpreters of the syllabus, and their interpretations then form the basis for the teacher's choice in teaching. Admittedly, the teacher must also interpret the school text books.

Another statement from Wennberg is that subject representatives had a great deal of influence on the syllabus at lgr62 and lgr 69, while others regarding lgr80 influenced that be characterized as representatives outside the central school administration.

With regard to the making of lgr62, Wennberg highlighted difficulties in the process of designing a syllabus in geography. Such difficulties could include the attitude of the syllabus group, time pressure, and the researchers' interest and disinterest in different theories. Regarding the work with lgr69, reference groups ended up in a discussion with

subject groups for SO and NO[4] about whether the subjects end up in the shadows in relation to more general work areas. It ended in subject descriptions remaining within both SO and NO; that is, also for geography. Wennberg argued that despite this discussion, geography was not diminished in descriptions. However, there is a built-in contradiction between essentialism and progressivism in lgr69, where Wennberg takes support from Englund (1986). Thus, the contradiction existed between a strict view of subject matter and a more subject-integrated view, where the strict view of subject matter still prevailed. These contradictions then continue in the preparatory work with lgr80. A proposal for a syllabus came in 1978 in the development of this proposal; Wennberg highlighted an analysis of Svingby (1981) to describe the process:

> In conclusion, Svingby emphasizes that making a curriculum is assumed to take place according to a rationalist goal-means model (a consensus model). In reality, it followed a conflict model, the work was characterized by a struggle between different values and interests. (Wennberg 1990: 119, my translation)

Another reform in compulsory school occurred 1980 (lgr80), which caused major changes for teaching in geography and other subject (Molin 2006). According to Molin, the work with lgr80 was characterized by contradictions. Wennberg (1990) also pointed out some of these contradictions.

A major change is that geography was sub-grouped together with other social science subjects under one subject (blockämne – samhällsorienterade ämnen). Geography and the other subjects in the block became more focused on goals to educate citizens of a democratic society, which can be seen in the syllabus where students get more insights into other living conditions and promote equality and solidarity (Molin 2006).

For the lower levels, *hembygdskunskap*[5] was a subject that included geography. It was introduced in 1919 and was still current in lgr69, but changed in lg80. Geographical knowledge was divided up in social and physical subjects or in blocks. However, the stakeholders who made the syllabuses did not agree on how this division should look Molin (2006).

Regional geography in lgr80 was a central part of the syllabus, but Molin (2006) also encountered new terms that can be connected to more spatial concepts: location,

[4] SO is a short term for subjects related social sciences (including geography, history, religion and civic), and NO stands for science subjects (including biology, physics and chemistry)

[5] The subject was introduced in *folkskolan* in the early 20th century and dealt with, for example, orientation of the local environment.

distance and distribution. Also included were models that should help students with problem-solving activities.

Anderberg (1986) investigated how lgr80 affected students' learning and school text books. He focused on knowledge of Western Europe and found that students' knowledge and the design of the school text books do not correspond with the curriculum. Students' lack of knowledge is also linked to teaching that needs to focus more on connections, and also that school text books are lacking in the same aspect.

The teaching of geography in compulsory school was evaluated by the National Agency for Education in 1993. Regional geography is evident in evaluations, both in teaching and school textbooks. School textbooks were a central part of the teaching. Holmén and Anderberg (1993) concluded that teaching at upper secondary school is characterized by the fact that geography had little place in social studies before 1994 and that teachers have a lack of knowledge. School text books also guide the teaching here as well, and the term geography often has a large place in what is to be taught. Molin (2006) stated that spatial aspects in the form of quantitative geography were introduced in social studies at upper secondary school at lgy88, which should be seen in relation to the fact that it has not previously been included in any geography teaching in either upper secondary school or primary school.

Molin (2006) concluded that selective traditions (see the chapter on research in geography education) feature this period, and the people (stakeholders) that represent this selective tradition include geographers at universities and authors of teacher materials, although the development in academic geography did not affect school geography on a large scale. It is more general changes in curriculum that also make changes in the subjects.

The third period: 1990–2005

The third period coincided with major changes for schools in Sweden. Reforms for school that became current at this time were a new curriculum for schools (lpo94, lpf94), a move from a centrally controlled school to decentralization, a start of the goal and result control period that still is present, private school reform, and free choice of schools (Wahlström 2014).

Molin (2006) accounted for geography in schools during this period. Geography as part of a block in compulsory school became loosened up and was voluntary. Geography returned to upper secondary school as a subject in itself, rather than just being represented in other subjects. It had always been present in compulsory school and still was during this period. At the end of this period geography was again discussed

and a suggestion was made to create a new subject called sustainable development, which would include geography. The suggestion did not become reality and geography remained a subject in schools.

An aspect of the curriculum that came to be in 1994 was the so-called free space to act (*friutrymmet*) (Molin 2006). This space was also studied by Molin in relation to teachers' views of their subject and teaching in upper-secondary school. Also, the curriculum for compulsory school (lpo94) opened the way for this free space for teachers, schools and students to make subject-related choices about content that would be useful in relation to the goals. The results of her study are presented in the chapter on research in geography education.

Ojanne (1999) also studied teachers' perceptions of the subject and arrived at teachers primarily teaching from a regional geographical tradition, based on knowledge of countries. According to Ojanne, geography related to human–environment issues does not have a large place in teachers' teaching. It is remarkable, according to Ojanne, that very few teachers become involved with the spatial aspects of the subject of geography.

In charge of writing the syllabus in geography in lpo94 was Solveig Mårtensson (1992). Mårtensson proclaimed that the syllabus represents a new geography that also focuses on spatial processes that interact, and that geography should be seen as way to integrate social studies and science. According to Molin (2006), no wider discussion was held about the view of knowledge in this curriculum. Molin described that a starting point in the syllabus in geography was big changes in society, and also that students should, to a greater extent, explain, analyze, and reflect on consequences, not just know facts and be oriented in the world. Molin also described that the syllabus has a focus from the near in lower levels to the far away in higher levels. According to Molin, some of the central terms in the syllabus are in line with the charter on geographical education (1992), such as place, location, spatial interaction, and flows.

Knowledge and reforms of the curriculum in Sweden after 1994

This chapter provides a background to the view of knowledge and structure of reforms of curriculums for compulsory school in Sweden after 1994. A table of curriculum reforms for compulsory school in Sweden will be presented before putting the reforms within a historical context.

Table 1. Curriculum reforms for compulsory school in Sweden
When reforms of the curriculum for compulsary school were made.

Curriculum reforms for compulsory school in Sweden	Year
Lgr62	1962
Lgr69	1969
Lgr80	1980
Lpo94, revised 2000	1994
Lgr11, revised 2019/2020	2011

The defined view of knowledge in Swedish schools is summarized in Paper 2 and also in Paper 3 and 4. Paper 2 also presents the syllabus construction, with the different parts being purpose, core content, and knowledge requirements. A short summary will follow the defined view of knowledge with some complements, then a further review will continue with reference to vital research. Following statement speaks about the view of knowledge in the curriculum:

> Knowledge is developed in an interplay between what you want to achieve, the knowledge you already have, problems you experience based on this and the experiences you make. (SOU 1992: 46)

In the 1994 reforms, *bildning* became a central concept, although it had been used before. The concept of *bildning* is a way to handle questions such as about what role education has. Knowledge in terms of *bildning* becomes a part of people's personalities. In school it could mean that goals are also to educate for independence and reflection (SOU 1992).

Knowledge in school is also constructive, contextual, and functional, and in regard to this education is about training knowledgeable students. Four aspects are central to defining knowledge.

- Facts are knowledge as information
- Understanding is knowledge that creates meaning
- Skills are knowledge as execution
- Familiarity is knowledge as judgment
  (SOU 1992: 47)

Subject-specific abilities was introduced as a new term in 2011 for knowledge and subject-specific goals, but the concept rested on the epistemological background found in the *Skola för bildning* (SOU 1992). These subject-specific abilities are central study objects in this dissertation; how knowledge in geography is recontextualized in different contexts can be made visible through interpretations and experience of subject-specific abilities.

The geographical knowledge in Swedish schools in the curriculum is presented through a syllabus that consist of purpose of the subject, core content, and knowledge requirements. As overall goals in geography with particular significance for knowledge requirements, subject-specific abilities were constructed in the purpose of the syllabus. The teacher should then use the subject-specific abilities as goals for teaching the subject, but also in relation to fundamental values and tasks and overall goals and guidelines. The core content and knowledge requirements are tools for teaching, assessment and grading to make the students develop the subject-specific abilities. This thesis focuses on the subject-specific abilities in analysis related to making and interpreting the ability. Below are the subject-specific abilities as they were presented in lgr11:

- To analyze how natural processes and human activities form and change living environments in different parts of the world.
- To explore and analyze the interactions among people, society, and nature in different parts of the world.
- To make geographical analyses of the surrounding world, and evaluate the results by using maps and other geographical sources, theories, methods, and techniques.
- To assess solutions to different environmental and development issues, based on considerations concerning ethics and sustainable development. (the Swedish National Agency for Education (SNAE, 2011a: 150–151))

The view of knowledge described in *skola för bildning* (1992) forms the basis for knowledge in the reform of 1994 and also the following one in 2011. However, the analysis by Lilliedahl, Sundberg, and Wahlström (2016) of material from Wahlström and Sundberg's (2015) evaluation of lgr11 led the authors to argue that the reform should be seen as more comprehensive than just a change in structure and clarity. The argument for this is: there is a more knowledge-effective approach in lgr11; early impact on practice (three years after implementation, a larger proportion of teachers use the new curriculum); the curriculum descriptions of "what" and "why" mean that this is not discussed as much by teachers as "how" and "when", which can also be linked to teachers feeling more controlled when it comes to content; and that grades and assessment become very important. How teachers implement the curriculum can be linked to how teachers experience the intentions of the curriculum rather than the actual intentions.

Concepts of the view of knowledge in the curriculums in Sweden from the early 1990s can be classified and summarized in three central aspects, that are still current (Wahlström 2014): a conception of meaning-making that is connected to teaching is

created in communication; a conception of essentialism where knowledge in subjects in connected to tradition in different subjects and disciplines; and a conception of results-oriented where measuring results is a vital focus in the teaching.

Another crucial occurrence was that national tests were introduced in several subjects one year after the reform of 2011. Subjects such as biology, physics, chemistry, geography, history, religion, and civics had national tests in years 6 and 9. The first tests were taken in the spring of 2012. In 2015 national tests were taken away for year 6. National tests are discussed in in Paper 1 in relation to learning progression.

To summarize, the reform of curriculum in 2011 introduced a new concept of knowledge – subject-abilities – that rested on a definition of knowledge in school from previous reforms in 1992. However, conceptions of knowledge in the curriculum reforms during from the early 1990s set the curriculum reforms in a context of meaning-making, essentialism, and result-oriented schools, and the reform of 2011 can be argued to have had an impact on the view of knowledge in terms of, for example, implementations of it.

Research in geography education

In this chapter I provide an overview of Swedish research in geography education in a broader sense. Some research has already been introduced in the chapter of the history of school geography. This chapter also includes an international outlook on geography education, giving examples of international themes and research. As the concluding part of this chapter, I discuss my thesis in relation to research in geography education and current debates in the field.

Swedish research in geography education

The Swedish research of geography education will be categorized and presented in themes: syllabuses and selective traditions, teachers, students, method and material, national tests and environmental issues, and education for sustainable development. Research can be in different categories at the time, and categories are in that way overlapping.

As an introduction, it can be mention that graduate schools that have been carried through in geography and geography education have contributed to research in geography education. In 2008 Uppsala University received approval to start a graduate school in geography and Karlstad University gained approval in 2012 concerning the

subject of social science (Bladh and Molin 2012), as did other graduate schools and research projects that involve geography education (Gofffridsson, Christenson and Bladh 2020). Also, Stockholm University arranged graduate schools (Bladh and Molin 2012) and has conducted research that can be connected to geography education. My graduate school at Lund University focused on educational science and subject didactics in different fields, where I am conducting research in geography education.

Syllabuses in geography and selective traditions

From a curriculum theoretical perspective on the school subject geography in Sweden, two dissertations emerge: one by Molin (2006) and the other by Wennberg (1990). Wennberg (1990) analyzed curricula in Sweden up to and including the one introduced in 1980. He also interviewed people involved in the development of curricula and active geography teachers. Molin also studied the syllabuses from a historical curriculum theory perspective, then also studied student teachers and school textbooks. The present dissertation follows in their footsteps, taking a closer look at the changes that came with the reform of 2011 curriculum.

Several studies on school geography in Sweden have shown that geography teaching is characterized by selective traditions (Molin and Grubbström 2013; Molin 2006; Ojanne 1999; Holmén and Anderberg 1993; Wennberg 1990). Selective traditions in geography are linked to the fact that teaching geography at school consists largely of name geography, blind maps, and descriptive geography (a version of regional geography), which means that names in different geographical locations are memorized and that, for example, countries are described based on different facts. Another strong selective tradition is that the transition from the local to the global is age-linked and not interactional. This means that teaching at low ages (years 1–3) is about Sweden, years 4–6 are about the Nordic countries and Europe, and years 7–9 deal with the whole world. In that way, the local and the global is not connected until years 7–9. Bladh's (2014) quantitative study about geography teaching in Sweden made it clear that selective traditions are still prominent in school geography in Sweden.

Other studies of Swedish school geography (Wennberg 1990; Holmén and Anderberg 1993; Molin 2006) have claimed that different syllabus of geography (ToH 1951, ToH 1955, Lgr 62, and Lgr 69) do not differ greatly, which can be connected to selective tradition in curriculum theory (Apple 2018; Englund 2005), where content is inherited from previous syllabuses.

The selective traditions that Molin (2006) highlighted can be linked to the school subject's weak connection to academic disciplines. To summarize, selective traditions in geography consist of:

- Name geography, regional geography
- Absence of a conflict perspective – lack of questioning and problematizing
- From near to far
- From physical geographical factors to social science factors
- Focus on countries instead of for example globalization processes

Molin and Grubbström (2013) argued that geography teaching is traditional in years 4–6. Thus, selective traditions are strong, which means that teachers focus on name knowledge of countries and map reading, and that teachers are unsure of what geography can be more about. Teachers experience that students have more difficulty with geographical reasoning at higher levels.

Moreno-Vera and Alvén (2020) compared the curricula for history and geography for primary school in Spain and Sweden through an international compared analysis. In relation to geography, the relation shows that geographical thinking concepts is missing as fundamental aims (in Sweden, the study refers to years 4–6). The geographical thinking concepts they refer to is based on Brooks et al.'s (2017) compilation of the power of thinking geographically through concepts such as localization, spatial relations, causality, and evolution. Those researchers linked the lack of geographical and historical thinking concepts to traditional teaching based on, for example, memorization, which highlights the problematic focus in social sciences (Martin 2005; Seixas 2017).

Teachers in focus

Some studies have been conducted on the teacher's view of the subject. Ojanne (1999) stated that the student teachers' view of geography is in line with policy documents from 1919. In interviews with teachers, Nilsson (2009) found that teachers who have not taught geography for a long time considered themselves beginners, even though they had been teaching other subjects.

Studying teachers' views on geography, Wennberg (1990) examined the curriculum's meanings for geography teachers. He concluded that the geography teachers were not familiar with the syllabi and did not use them in their teaching, as I mentioned in the historical description above. Molin (2006) investigated student teachers and upper secondary school teachers' choice of content. She also studied curricula and school text

books in geography, emphasizing that there are mainly three factors that influence the student teachers' choice of content: supervisors, governing documents, and school text books. Thus, school text books are a central part of the teachers' basis for teaching. Molin (2006) also analyzed school text books and showed examples of shortcomings: textbooks in geography can consolidate stereotypes, they do not invite self-reflection, texts inherit from each other and images highlight differences. Molin also produced typologies to describe and analyze teachers' teaching of geography. Molin presented five different didactic typologies: traditional value-based geography teaching, science-based geography teaching, social science-based geography teaching, interdisciplinary-based geography teaching, and topical and value-based geography teaching.

Table 2 Didactical typologies of geography teachers
Typologies of teaching georgraphy in upper-secondary school.

Five didactic typologies
Traditional value-based geography teaching is characterized by name geography and regional geography, as well as content that changes slowly. Own nation and homeland are central and also that the teaching is based on the known to meet the unknown.
Science-based geography education is also slowly changing in terms of content. There is a focus on physical geographical factual knowledge that is memorized in the teaching and isolated from reality. Factors that are physical are used before the human-geographical connections.
Social science-based geography teaching is connected to quantitative geography and can be linked to distribution and patterns. The teachers present reality with models.
Interdisciplinary geography teaching includes perspectives of dynamism, pluralism, and conflict. The integrated geography is in focus and the teaching is problem-oriented and includes current societal problems. Unlike traditional value-based teaching, this typology can start from the unknown to meet the known.
Topical and value-based geography teaching is interdisciplinary with a conflict perspective. Students must be given tools to change society; that is, to develop readiness for action. The teaching problematizes and is based on the students' interest and on topicality.

Various factors influence the teacher's choice of content in their teaching. Molin et al. (2015) argued that these factors are a fundamental part of didactic subject matter. One factor that they investigate in this research is personal experience (formal and informal) and how that has an impact on teaching and didactics choices. Molin et al. concluded that informal experience has a major impact on teaching, showing, for example, that childhood experiences affect how the teaching occurs about the relationship between nature and human.

Shortly after the implementation of the curriculum in 2011, a quantitative study was conducted on geography teachers' views on their subject (Bladh and Gottfridsson 2012, Bladh 2014). The sampling for the study was active geography teachers and the study was conducted in 2011 and 2012. Bladh (2014) presented results from the study and asserted that school geography often referrers to a potential interdisciplinary subject in

school and that one-third of compulsory school teachers lack education in geography. The subject of geography is also often seen as a craft subject that is intended to help other subjects in the form of tools and materials. Teachers also often identify themselves as teachers in other subjects even if they teach geography.

Bladh's (2014) other results concerned what teachers teach in years 4–6 and 7–9. Table 3 shows which themes teachers focused on in geography in 2011/12, with 7–9 singled out, translated to English from Bladh (2014:165).

Table 3. Teaching geography in years 7-9 (Bladh 2014)
Which themes teachers focus their teaching on.

Year 7–9	%
Human activities and habitats	86
Demography	81
Natural resources – presence and exploitation	75
Sustainability and justice	75
Environmental threat	71
Globalization	68
Climate and vegetation	68
Physical processes – earth surface	64
Production of goods and services	59
Vulnerable landscapes/natural disaster	59
Name geography	57
Physical and cultural landscapes	49
Geographical tools	44
Water cycle	40
The earth's energy balance	38
Community planning	37
The world's oceans	35
Meteorology	26

Bladh (2014) discussed the results of that study in terms of the field of tension, which is presented in Figure 1. Bladh's (2014:167) illustration of the field of tension shows how Swedish school geography can be seen in relation to teaching; (my translation, original in Swedish).

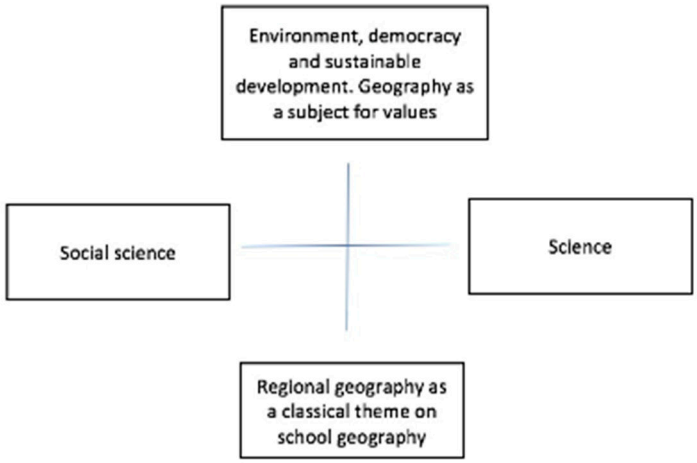


Figure 1. Field of tension (Bladh 2014)

In relation to the field of tension, Bladh (2014:167) wrote:

> At the same time, there are challenges to further deepen geography as a subject, and to develop perspectives and models in order to more clearly weave together the relationships between nature and society. In several of the open questionnaire responses, geography is presented as thematic in-depth study of specialized human or physical geography, with a relatively weakly developed holistic perspective.

The field of tension shows a divided teaching practice in Sweden, with teachers teaching geography in different ways without taking a holistic perspective or lacking synthetic and integrational perspectives.

Gottfridsson and Christenson (2020) discussed and presented results based on the same study, but supplemented it with parts that have not been reported elsewhere. They focused on knowledge issues in the subject in relation to the teachers. In terms of abilities, the researchers highlighted three that are of particular importance to teachers: (1) that students learn to argue from different standpoints, (2) that students understand causes and connections, and (3) that students can draw conclusions from facts. The teaching is often varied, but a common working method is discussions between teachers and students. Gottfridsson and Christenson (My translation, 2020: 103) concluded from the material in the study that:

> Swedish geography teachers have a good understanding of learning variation dimensions and the perception that good learning is not just about learning a predetermined body of knowledge but a view of learning as something that aims to influence how the student understands, experiences and relates to his world. Knowledge is also seen to be able to express itself in many and varying dimensions, which is well in line with the curriculum's intentions.

Some other results from the study are that few teachers carry out field studies in teaching, that teaching is greatly influenced by current events in society, that international collaborations are unusual, and that teachers only allow students to collect their own data to draw conclusions to a minor extent.

Einarsson (2018) studied time perspective in relation to teaching about geology in school. Geology is a vital part of geography, but can also be present in other subjects. Einarsson (2018) used theories about awareness of time (Karsten 2009) and investigated possible teaching methods that can be useful for teachers. She suggested teaching materials about time perspective for teachers to work with in school through time cycles and timelines.

Students in focus

Hennerdal (2015a) examined students' worldviews, stating that a worldview can be divided into (1) someone's image of the world and (2) someone's philosophy of life. Hennerdal dealt with a person's image of the world in three artciels linked to representations of geography: in a historical perspective (Hennerdal 2015b), regarding place location knowledge (Hennerdal 2016), and about understanding maps and projections (Hennerdal 2015c). Other studies in Sweden about understanding maps and map-reading were conducted by Peterson (1971) and Ottosson (1987).

In the first article, Hennerdal (2015b) touched on educational ideas in geography education in the 19th century and the early 20th century. At that time, geography teaching was characterized by a regional geographical tradition where facts and extracurricular knowledge about different regions were central parts. Hennerdal connected these ideas with the debate that took place after the implementation of lgr11. The debate was largely about the political changes to the curriculum and that these changes can be linked to an outdated, or regional geographic, tradition, in geography. However, Hennerdal showed that geography teaching linked to names and facts already existed in Sweden before the regional geographical tradition had an impact, and also that criticism of teaching based on these traditions also existed earlier. Thus, Hennerdal showed that the early teaching based on regional geography also included teaching with

maps to gain context and understanding of the descriptive elements, which nuances the picture of geography teaching from that time.

Hennderdal's (2016) article on place-location knowledge started from a study conducted 45 years earlier (Peterson 1971), but was accomplished in the same way. In the study, the researchers examine students' knowledge of name geography. The syllabus that was the basis for the early study and for Hennerdal's study highlighted name knowledge in geography as part of the knowledge that students must develop. The results show that students have not acquired poorer knowledge of name geography over time, but that the knowledge has adapted to what society looks like today. For example, students are better at seeing the bigger picture, such as plotting and naming continents and oceans on a world map, than they are at more specific and detailed naming skills, such as identifying countries and regions on a European map.

The third article (Hennerdal 2015c) is about how children and adults understand world map continuity. Hennerdal showed how children and adults reason about understanding the edge of world maps and how it is connected to the world. In the study, children and adults were asked to describe what happens to an airplane when it crosses the edge of the world map, and results show that both adults and children responded incorrectly, which shows how flat maps can lead to misunderstandings. It is important to learn how different projections work in order to have knowledge that can handle the question of what an aircraft takes the road when it passes the edge. In Hennerdal's study, the aircraft passes the northern edge and both adults and children answer that the aircraft continues at the South Pole. To understand what the plane is doing, students need to apply a mental fold. Digital globes can also help students practice mental folding.

Another study that is relevant for students' understanding of maps is Ehrlén's (2007) studies of how children understand visual presentations of Earth. She conducted interviews with children aged 6–8 and 6–9 in two studies, investigating their understanding of a globe and a satellite image. Her findings show that the children's conceptions of Earth representations are complex and cannot be traced to just a specific representation that the children were exposed to.

Arrhenius (2013) investigated how learning in geography takes place with the help of animations of the geological cycle. The study showed the importance of which examples the teachers use and that the teacher is active in the teaching by, for example, explaining and connecting with the students' new experiences. Students sometimes missed important events in animations, which can be linked to which examples are used. It is also important that students understand different parts of, for example, geological processes in order to be able to put them together into a whole. Furthermore,

Arrhenius, Lagerholm and Bladh (2020) examined how students understand processes forming eskers and erratics. They concluded that both scientific and alternative conception can be shown in the students' answers. The alternative conceptions of these processes can be divided into three categories: natural, human, and mythology.

Methods and materials

Several researchers have analyzed school textbooks. Wennberg (1990) and Molin (2006) supplemented their research with studies of school textbooks in geography. Olsson (1986) focused her research on analyzing the view of culture in school textbooks in geography in Sweden. In a Nordic study of textbooks, Sætre (2009) has, among other things, concluded that textbooks in geography in the Nordic countries often have common features.

Research about GIS (geographical information system) in geography education is almost entirely absent in Sweden. However, Bladh and Goffridsson's (2012) quantitative study showed that many teachers do not include GIS in their teaching (Bladh 2014), even though it is a part of the curricula for from years 7–9 and in upper secondary school. Schubert and Johansson (2019) analyzed opportunities and difficulties concerning GIS program in Swedish secondary and upper secondary school and conclude that the preconditions for teachers are good, but that teachers need to develop their technological pedagogical content knowledge, with a standing point in Schulman (1986) and Mishra and Koehler (2006).

Blom Mondlane and Jansunds (2003) sought to link knowledge in human geography to teaching content of the discipline. They developed a teaching method called process method, which is based on problem-based learning and deep orientation. The teaching method has been proven to help students connect parts with the whole.

One recent article has taken a more historical perspective on field studies in Swedish schools (Schmidinger, Molin and Brandt 2014).

National tests

Fjellborg and Molin (2018) showed that the construction of tasks is important for how students who do not have Swedish as a native language will cope with them. In this way, the textual design is important for how students cope with the questions. Molin and Fjellborg (2019) also compiled results from national tests in year 9, which they then analyzed and compared with various variables. They concluded that the results do not differ between private schools and municipal schools, but the results do differ

between metropolitan areas and smaller towns. Schools in metropolitan areas, to a greater extent, gave higher grades than the results on national tests show. In an article. Molin (2020) discussed these results and linked them to the fact that higher competition in metropolitan areas can affect the outcome.

No other studies have been done on assessment and grading in geography education in Sweden, which also is in line with the lack of Swedish studies in the international systemic review of assessment of geography education (Lane, & Bourke, 2019).

Environmental issues and education for sustainable development

Krammig (2017) wrote a dissertation in environmental geography with a focus on teaching about environmental issues. Her study is in the field of geography in relation to education, but also other subjects that concern teaching about sustainable development. Krammig concluded that there is a difference between how students express themselves on environmental issues and how environmental issues are presented in policy documents on UHU (ESD). ESD is perceived normatively and creates negative emotions in students. Other studies have been done on environment and sustainability, with connection to geography education; see, for example, Nerdal (2014, Torbjörnsson (2011, 2014), Grahn (2011), Pettersson (2014), Harring et al. (2018). Torbjörnsson and Molin (2015) also proclaimed that geography through environmental issues can be linked to future perspectives. They stated that teachers do not usually include future perspectives in teaching.

An international outlook on research in geography education

An overview

In 1992, the IGU-CGU (International Geographical Union - The Commission for Geography Education) made a Charter on Geography Education (1992) that proclaimed the importance of geography. In 2016, a new charter was made in the field of geography education. The charter on Geography Education (2016:4) supports the old one, but also add three new aspects:

- Geography is the study of the Earth and its natural and human environments. Geography enables the study of human activities and their interrelationships and interactions with environments from local to global scales.

- While geography often bridges natural and social sciences, it is pre-eminently the discipline that deals with spatial variability; i.e. that phenomena, events, and processes vary within and between places and should therefore be regarded as an essential part of the education of all citizens in all societies.
- Geographical education is neglected in some parts of the world, and lacks structure and support in others.

Another declaration is the *Lucerne Declaration on Geography Education for Sustainable Development* (Haubrich et al. 2007).

IGU-CGU have also initiated a book series with an international approach to Geography Education: *International Perspectives on Geographical Education*. A couple of books have been released showing major themes in geography education, such as: Learning progression in Geography Education (Solari et al. 2017), The Power of Geographical Thinking (Brooks et al. 2017), and Geography Education for Global Understanding (Demirci et al. 2018). Other publications that give an overall insight to Geography Education Research are done by for example Graves (1982), Gerber (2003) and Lidstone and Williams (2008).

Research in geography education is being conducted in many different countries, where the context of geography education in different settings is analyzed. Examples of research themes and research include: technology in relation to geography education, such as GIS (Andersland 2011; Fargher 2018; Curtis 2019; Favier and Van der Schee 2012; Lei et al 2009), field studies (Woolhouse 2016; Chang et al 2012), place-based learning (Rawling 2018; Yli-Panula et al 2020), environment and sustainable development (Bagoly-Simó 2014; Skarstein and Wolff 2020; Brooks 2016b), teacher subject knowledge (Lambert et al 2015; Kirsky 2015), children geographies (Sirpa 2011; Holloway 2014), text books (Sætre 2009; Taylor 2017; Behnke 2016), thinking skills (Leat 1998; Van Der Schee et al. 2006; Applis 2016) and action research (Kwan and So 2008; Wood and Butt 2014).

Curriculum studies as a field of research can overlap the themes mention above. An essential aspect of curriculum studies is taking different national settings into account when studies are conducted (Butt and Lambert 2014). However, an influential study for this thesis is Rawling's (2001) research into how national policy impacted and changed the subject between 1980–2000 in the UK. She investigated how different players acted in the debate of making a curriculum, concluding that it was battle of decisions about what to include in the curriculum. Such a battle was filled with conflicts and compromises between players such as state ministers, geography educators, the national media, and citizen groups. Ultimately, no one got what they wanted.

What lies ahead concerning geography education is not easy to predict. However, Chang and Kidman (2020) pointed to several possible themes that could be essential areas of research in geography and environmental education in the coming decade: environmental awareness and action, technology and geography education, and identity and values.

My research can be placed as a curriculum study with a focus on geographical knowledge. Teachers' subject knowledge is also relevant, as is the political and educational context of making a curriculum. Research concerning curriculum studies and geographical knowledge that also have relevance for my study are further presented in the chapter on theories of geographical knowledge.

Concluding remarks and current debates in geography education

Big debates in geography can be different in different contexts, such as different national settings. In the books entitled *Debates of Geography Education* – first edition (Lambert and Jones 2013) and second edition (Jones and Lambert 2018), some of the international debates concerning geography teaching are presented and divided up in different sections – policy, classroom and subject. Several issues are brought up in these sections, such as fieldwork, geographical information and technology, sustainable development, assessment, and the relationship between academic geography and school geography. However, an issue that is highlighted in both books is the question of geographical knowledge, what constitutes this knowledge, and how a curriculum can be constructed that includes geographical knowledge. As mentioned earlier, my research is a curriculum study that focuses on different aspects of making a curriculum in geography and how geographical knowledge is recontextualized in different contexts in the process. Therefore, this thesis can be seen as a contribution to discussions in the debate of what geographical knowledge is, how a curriculum can include geographical knowledge and how teachers can handle the teaching about geographical knowledge.

PART III – THEORY AND METHOD

What is geographical knowledge? Theories of knowledge in geography education

What constitutes knowledge of geography and what differentiates geography from other subjects? This is a complex issue, but there are some theories that can help to answer these questions. I have used the following concepts as analytic tools to research the recontextualization and experiences of geographical knowledge in a Swedish school context.

- Thinking geographically
- Geographical advantage
- Geocapabilities
- Geospatial thinking and spatial citizenship education

These concepts of geographical knowledge overlapped but also represent different and complementary aspects in an analytical toolbox. Thinking geographically (Jackson 2006) is a concept for teachers to help them see geography in different content. Geographical advantage (Hanson 2004) can be helpful for separating geography from other subjects and disciplines. Geocapabilities (Lambert et al 2015) take a step towards a future perspective and try to find the potential in geographical knowledge. Geospatial thinking is more connected to the spatial research and ideas have also been connected with citizenship.

Paper 1: The results are analyzed through the concepts in the chapter on further analysis and conclusions.

Paper 2: Thinking geographically, geographical advantage and geospatial thinking are used to analyze the Swedish curriculum in the paper. The results are analyzed through the concepts in the chapter on further analysis and conclusions.

Paper 3: The results are analyzed in relation to geocapabilities. The results are also analyzed through the concepts in the chapter on further analysis and conclusions.

Paper 4: Thinking geographically and geographical advantage is used to analyze the teacher's experiences. The results are also analyzed through the concepts in the chapter on further analysis and conclusions.

Other terms could also be used that can be related or contribute in other ways, such as geoliteracy (Kirsky 2015), geographical wisdom (Morgan 2006), and thinking through geography (Leat 1998). However, I choose to limit the research to the concepts presented above.

Thinking geographically

Jackson (2006) described thinking geographically in grouped key concepts. These key concepts should help the teacher bring key geographical knowledge into their teaching.

- Space and place. Jackson connected diverse ideas and theories about space and place to these concepts. Geographers such as Tuan (1977), Massey (2004)[6] and Harvey (1989) are examples of different perspectives on space and place that also set the possible usage of the terms. Highlighted is Massey's point that place is connected to space and therefore in a paradox: "… that places are both unique and connected to other places" (Jackson 2006:200). Place can be seen as more concrete, personal, and contextualized and space as more abstract, generalizable, and impersonal.
- Scale and connection. Jackson pointed out the connections between scales as the connections between the local and global. Global and regional processes have local impact and vice versa.
- Proximity and distance. In Jackson's terms, these are explained by both physical distance and an imagined distance. People have physical distance from other people and places, but the perception of that distance can differ.
- Relational thinking. In Jackson's terms, these key concepts are a mixture of the other concepts in a setting of how people relate to the world. Constructions of dividing the world into, for example, west and east, can be visible and the reality of the uneven development of the world can be noticeable.

[6] See also Massey (2005)

Geographical advantage

Hanson (2004) concluded four points to answer what geographers do that other disciplines do not, and therefore differentiated geography as a subject from other subjects. She called the four points geographical advantage:

- Relationships between people and the environment
- Importance of spatial variability (the place-dependence of processes)
- Processes operating at multiple and interlocking geographic scales
- Integration of spatial and temporal analysis

She also highlighted the importance of geographical advantage to understand questions such as how cities change in relation to the rest of world. The issue of what questions to ask in relation to different problems are a way to define geography. Issues can be related to matters such as climate change and biodiversity and are also in scale perspectives.

Geocapabilities

Geocapabilities was an international research (Lambert et al 2015) project that focused on highlighting the function of the subject of geography in order to educate people and develop the necessary knowledge. Geocapabilities rested on the idea of the capability approach introduced by Nussbaum and Sen (1993). Another essential theory of knowledge that formed the basis for the project was Young's (2008) idea of powerful knowledge (see chapter about curriculum theory). Lambert (2015:7) set Youngs ideas of powerful knowledge in a context of geography with following definition: "evidence-based; abstract and theoretical (conceptual); part of a system of thought; dynamic, evolving, changing – but reliable; testable and open to challenge; sometimes counter-intuitive; exists outside the direct experience of the teacher and the learner; discipline based (in domains that are not arbitrary or transient)." With this definition in mind, Maude (2015; 2018) assumed the task of putting the idea of powerful knowledge in a geographical knowledge context, and presented the following ideas of geocapabilities:

- knowledge that provides students with 'new ways of seeing the world';
- knowledge that provides students with powerful ways to analyse, explain and understand the world;
- knowledge that gives students some power over their own knowledge
- knowledge that enables young people to follow and participate in debates on significant local, national and global issues;
- knowledge of the world.

Several researchers have used the perspective of geocapabilities and powerful geographical knowledge in different contexts, such as Australia and England (Casinader et al. 2020), Japan (Kim et al. 2020), Sweden (Bladh 2020b; Örbring, Bladh 2016), the Netherlands (Béneker and van der Vaart 2020), and in comparison between four countries: Finland, Germany, the Netherlands, and Sweden (Uhlenwinkel et al. 2017, in relation to WebGIS (Fargher 2018), and in a higher education setting (Walkington et al. 2018).

However, the concepts of powerful knowledge have been discussed (see chapter about curriculum theory). Roberts (2014) discussed powerful geographical knowledge in terms of everyday and school knowledge and raised issues concerning pedagogy and the curriculum. Robert meant that the division Young made between school knowledge and everyday knowledge is more difficult and complex. The selection of knowledge in to the curriculum is not treated enough within powerful knowledge, which also means that the relation between academic and school geography is often complex. She further argued that:

> To make sense of geographical knowledge, they need to be able to understand, interpret, analyse and critique geographical data presented in different ways: printed text; maps; statistics, graphs; photographs and film. To make sense of geography they need to make connections of all kinds: between existing knowledge and new ideas; between different pieces of information; between different concepts. (Roberts 2014:204–205)

Lambert (2019b) reflected on the geocapability project and powerful geographical knowledge with consideration to recontextualization, which can also be taken to account in Roberts (2014) meaning:

> In the case of geography then, recontextualization is a particularly tricky idea and should be treated with caution. But teaching with intellectual honesty does require us to engage in some way with the untidy and unruly 'discipline' of geography to help us imagine a 'school subject' that can truly contribute to the process of education. This includes embracing as a virtue the dynamic and evolving nature of the discipline: for example, taking on what modern geography can tell us about masculinist and racist knowledges of the world; assimilating what is significant about global process in our apprehension of national boundaries and limits of nativist rhetoric and national exceptionalism; understanding the diverse, local human impacts around the world of the climate emergency. (Lambert 2019b:261)

Furthermore, Bustin (2019:4) described the potential of geocapabilities as follows:

> A potential to help young people discern facts from fiction; a potential to understand the nature of the changing world; and a potential to be able to think knowledgeably, live and work in the modern world.

Geospatial thinking and spatial citizenship education

Under this heading are several terms that need to be developed: spatial, geospatial and spatial citizenship. Shin and Bednarz (2019) explained what spatial citizenship education is and connected it to geography:

> We coin the phrase spatial citizenship to illustrate how we believe that geography can contribute to a new type of citizen – one with an enhanced understanding of the world as seen through the key concepts of geography: space, place, scale, power, and human-environment relationship. (Shin and Bednarz 2019:1)

Space, according to Shin and Bednarz (2019), is connected to relationship between the spatial and the environment as two central perspectives that are studied in geography. Space is further developed:

> All events take place in space – earth space-and the relations among people, places, and environments are spatial. They are also dynamic, constantly changing and evolving, influenced by a number of factors, including power and control. Geographers use space to conceptualize the patterns and processes we observe, including key contemporary processes such as urbanization and globalization, hence the importance of the spatial in geography. (Shin and Bednarz 2019:1)

Citizenship is explained as a conceptual way of understanding the term, with standpoints in different definitions, such as three versions of citizenship: the personally responsible citizen, the participatory citizen, and the justice-oriented citizen (Westheimer and Kahne 2004). Lambert and Machon (2001) saw citizenship as a term that is not fixed and can be connected to areas such as self-interest.

In Paper 2 the term spatial thinking is used to analyze the syllabus of geography. Spatial thinking can be connected to geospatial thinking and spatial citizenship education. Spatial thinking is relevant both in science and in daily life. Through spatial thinking, people can develop their skills to define, understand, and solve problems, a point that was further developed in a report from the National Research Council (2006) in the US:

> Spatial thinking uses representations to help us remember, understand, reason, and communicate about the properties of and relations between objects represented in space, whether or not those objects themselves are inherently spatial. (National Research Council 2006:27)

Spatial thinking is also connected to spatial representations through technology as GIS (geographical information systems), and the importance of developing competence or knowledge that make people able to use spatial representations to understand the society and the environment – to develop spatial citizenship (Gryl and Jekel 2012).

Spatial thinking could be considered to be a core geographical concept, which becomes visible, for example, in Graves' (1982) overlapping central aspects of what geographers' study: spatial location, spatial distribution and spatial relations. Baker et al. (2015) also defined spatial thinking and geospatial thinking:

Table 4 Spatial and geospatial thinking

Spatial thinking	Geospatial thinking
"A set of abilities to visualize and interpret location, position, distance, relationship, movement, and change through space. Spatial thinking and reasoning involve cognitive processing of spatial data. This locational, positional, and measurement data is encoded and stored in memory, and can be represented externally by visualizations." (Baker et al. 2015:120)	"A specialized form of spatial thinking that is bound by Earth, landscape, and environmental scales. Geospatial reasoning skills are higher-order cognitive processes that provide a means to manipulate, interpret, and explain information, solve problems or make decisions at geographic scale." (Baker et al. 2015:120)

Thus, geospatial thinking is a form of spatial thinking, although the cognitive aspects of spatial thinking and geospatial thinking are also prominent. A term that is also used in the context of spatial cognition is spatial frame of reference, which will be relevant for Paper 4. Spatial frame of reference can be explained by:

> A means of representing spatial locations relative to some spatial framework. Broadly, frames of reference are defined relative to the viewer, egocentric, or relative to something other than the viewer, allocentric. Specifically, the viewer-centered reference frame can be sub-divided into head, limb, or body reference frames. The allocentric reference frame includes objector environment-relative frameworks. (Binder et al. 2009)

Lambert (2019a) set geocapabilities, powerful knowledge, and future 3 in a setting of spatial citizenship education. He pointed out that geocapabilities is a concept that "is fairly and squarely on the role and purpose of geographical knowledge in relation conceptions of the educated person" (Lambert 2019a:22). In this way, spatial citizenship can be connected to geocapabilities through the capability approach; that is, the importance of geographical knowledge for people to act and live in the world.

Concluding remarks about geographical knowledge

Geographical knowledge, as in the concepts mentioned in this chapter, have several similarities in terms of connecting geographical knowledge to place, space, scale, and interrelations between human and the environment. Time in relation to space and place could also be argued to be a common aspect in the different concepts. However, my reason to include these four concepts is that they compensate each other and give different perspectives. Thinking geographically makes it visible what geographical knowledge is in relation to different content, and geographical advantage separates geographical knowledge from other subjects and disciplines. Geocapabilities take another approach and contribute on the potential for learning geographical knowledge, and at least geospatial thinking and spatial citizenship education focuses on the spatial aspect a citizen and therefore gives a more nuanced picture of geographical knowledge.

The focus on place, scale, and interrelations was also highlighted by Taylor (2008). She looked at what students should develop for knowledge of geography and linked central concepts (space, place, and time) to additional concepts (change, diversity, interaction, perception, and representation) in order to develop support for teachers in the planning of teaching geography.

The impact of geographical knowledge for students' scale was put forward by Skarstein and Wolff (2020), who argued for the importance of scale in matter of time, space, and multitude in geography education for sustainability thinking. They argued that many core issues in sustainability require an understanding of scale in terms of shifting magnitudes of the abovementioned aspects of time, space, and multitude. They also argued that misconceptions of issues in sustainability are connected to an inability to understand shifting in scale.

Also, Bustin (2019) studied what students can gain from learning different geographical knowledge. The geographical knowledge that Bustin focused on is world knowledge, relational thinking, and the ability to participate and influence the world. World knowledge is linked to being able to orient oneself in the world. Relational thinking means that students learn to see connections and changes.

In this thesis, these ideas of the importance of scale, world knowledge, and relational thinking are used to discuss results from the different papers in the chapter of further analysis and conclusions.

Curriculum theory

The overall aims and research questions in this dissertation can be explored through two different fields of theories: curriculum theory and geography education theories. The boundaries between these fields are not sharp. Relevant theories for this thesis follow under the respective fields and are used to analyze the results in my papers.

What is curriculum research?

The term curriculum is complex and has different meaning in different contexts. In Sweden it is often connected to the policy document, the written words that steer the school, such as in communication in school and in political context. Curriculum studies in Sweden often have a broader perspective on the term curriculum, which you can read about later in this section.

Lundgren (1989) claimed that a curriculum is about organizing the surrounding world. A central part of organizing the world is defining what knowledge is, and this is also a main part of curriculum studies (Deng and Luke 2008) – what knowledge in school is and what students should learn in school are vital study objects. In that way, curriculum research aims to visualize the assumption and structure of the curriculum in policy and classrooms.

Doyle (1992) made a division of curriculum studies in two different levels: (1) the institutional level, (2) the classroom level. The institutional level includes the programmatic level. These divisions have had a big influence on curriculum research. The first level includes the interaction between school and community, and it also includes curriculum design (programmatic level), which is the selecting and writing of content and goals in syllabuses. The second level is where the teaching happens, where the teachers interpret the syllabuses and make didactical choices.

Wahlström's (2014) division of curriculum research can be compared with Doyle's (1992). Wahlström's divided the field into three arenas: (1) the society arena, (2) the governance arena, and (3) the classroom arena. Doyle's levels are visible in Wahlström areas. The first area includes Doyle's first level. The second area is similar to Doyle's programmatic part of the first level and the third area is similar to Doyle's second level. Uljens (2018) also divided curriculum studies into three parts: (1) philosophical curriculum studies, (2) curriculum policy studies, and (3) curriculum praxis research. Altogether these areas or levels of curriculum studies are similar in many ways, but also have some differences.

Curriculum theory can be used to understand the processes of various educational reforms. The processes within the formulation arena to the realization arena (Lindensjö and Lundgren 2014) are in focus for this dissertation. A division into arenas (society arena/ideological policy arena, governance arena and classroom arena) described Lilledahl, Sundberg, and Wahlström as a classic way of using curriculum theory and refers to writings by Englund (2005), Lundgren (1989), Sundberg (2012), and Wahlström (2009).

Curriculum studies is a field that rest on Anglo-Saxon traditions that have inspired research in Sweden (Lundgren (2015). Essential curriculum studies in Sweden in relation to curriculum studies include Dahlöfs (1967; 1971) frame factor model, Lundgren's (1989) research about curriculum codes and later Englund (1986; 2005), who developed the civic curriculum code. Current studies include Wahlström's (2014) about the reforms of the curriculum from the early 1990s onwards. In Sweden there is also tradition of didactic studies that can be related to curriculum studies in terms of overlapping in research focus on issues such as how teachers use and interpret the curriculum, but can also be separated in terms of perspectives and focus (Bladh 2020b; Hudson 2016). Where curriculum studies have been focusing on what Doyle (1992) called the institutional and programmatic level, didactics have been focused on the classroom level. Doyle (2017) also connected Didaktik with the Anglo-Saxon tradition by stating that Didaktik has contributed to a greater focus in the Anglo-Saxon tradition on, for example, the transformation and enactment of the curriculum.

Another take on the curriculum research in Sweden is the concealed curriculum (Broady 1981). Broady was inspired by Jackson's (1968) term "the hidden curriculum" in research about the concealed curriculum in Sweden. The concealed curriculum is about norms in school that do not exist in policy documents but are still part of demands on pupils in school; for example, that pupils should raise their hand when they have questions.

The pedagogical device

Bernstein (1990, 2000) defined a pedagogical device as a collection of processes in which knowledge is transformed in school and becomes, for example, teaching. The knowledge that is transformed in the processes seeks meaning. Sing (2002:572) highlighted Bernstein's theories of pedagogical device as useful when:

> a model for analysing the processes by which discipline-specific or domain-specific expert knowledge [1] is converted or pedagogised to constitute school knowledge (classroom curricula, teacher–student talk, online learning).

The pedagogical device has three main fields: production, recontextualization, and reproduction. Through these fields, knowledge is created and transformed. An example of the first field (production) is universities. The second field is recontextualization, where knowledge ends up in a school discourse and is treated by, for example, teacher education, the Swedish National Agency for Education and the Ministry of Education. The last field (reproduction) takes place in school in the form of, for example, teaching. Recontextualization takes place between primary context (production) and secondary (reproduction) context and can be divided into two subgroups: official recontextualizing field (ORF) and pedagogical recontextualizing field (PRF). Political and decision-making units and bodies operate in ORF, while PRF is teacher education and educational science research and journals. Within PRF, various agents act to influence how knowledge is to be formulated in the pedagogical discourse. In the making of a curriculum, knowledge is going to be chosen by agents. This knowledge is produced, for example, in universities in various disciplines and is filtered through a recontextualization process before making it to a syllabus. In Paper 3, interviewed stakeholders can be as such agents.

There is also recontextualization between the curriculum and the classroom, which is analyzed in Paper 4. Education in school consists of an interactive relationship between the teaching and the curriculum. Bernstein (1990) used three main concepts to describe this relationship: primary context, secondary context, and re-contextualization. The curriculum is produced in the primary context; compare with the institutional level (Doyle, 1992) or governance area (Wahlström 2014). The secondary context is where the curriculum is being taught or reproduced, compared to the classroom level (Doyle 1992). There is an interactional relationship between these contexts and many factors can affect how this interaction develops. Bernstein described it as a pedagogical discourse. According to Bernstein (1990), the transformation from primary to secondary context is a recontextualization. The teacher is part of the recontextualization when he or she interprets the curriculum and does teaching. The interpretation becomes reality when the teachers make choices in relation to the syllabus in geography. According to Bernstein, the four main actions that can describe the interpretations are selection, simplification, condensation, and elaboration. The teachers' recontextualization is also dependent on pedagogical discourse, which means that, for example, experience, education, resources, and steering can affect the outcome in the secondary context. In the present research, the teachers' and stakeholders' experiences (Marton and Pong, 2005) of their interpretations of the subject-specific abilities are placed in the field of recontextualization.

Bernstein (1999) also discussed knowledge in curriculum in terms of horizontal and vertical discourse. The horizontal discourse is the common knowledge – what students learn through direct experiences of the world, which are unprocessed and practical. The

vertical discourse refers to knowledge that is more difficult to access, such as the knowledge that universities and science represent and should be seen in hierarchal perspective. Framing and classification are two other terms that Bernstein (1990) used to analyze subjects and curriculums in school. Classification refers for example to the level of subject integration and strict borders between subjects. Framing is about how much the teacher can decide or be controlled. This can also be used as analytic tools in the field of recontextualization and is relevant in context of teacher profession and agency.

Curriculum-making, didactics, and subject matter didactics

In Sweden, the tradition of didactics and subject matter didactic is a different conceptual apparatus then Anglo-Saxon of curriculum-making and other related terms. The similarities and differences in the approaches, which have also been addressed by researchers recently, are presented in this chapter. Common interest in educational sciences has open up for a comparison and an overlap to be able to compare and draw conclusions.

Subject-matter didaktik[7] are according to Kansanen (2009:31) defined as: "… how to combine subject matter or content with general didaktik and arriving at an optimal way to teach and study a particular subject." Kansanen (2009) also linked subject matter didactics to pedagogical content knowledge (Schulman, 1986). Brooks (2006) used the term curriculum design to describe the curriculum when it is written and when choices are made about what the curriculum should include, and curriculum making when the teachers use the policy to teach in schools.

Bladh (2020b) has been involved in the research project geocapabilities (Lambert, Solem, and Tani 2015) and has therefore had to compare concepts about the curriculum and teaching between different contexts. He compared the concept of didactics and subject matter didactics with other terms such as curriculum thinking, curriculum making, and powerful knowledge (see also Bladh and Örbring 2016). Bladh (2020) argued that terms as curriculum making and curriculum leadership are not easy to translate to a Swedish context or other contexts (for more examples, see Deng, 2018a; Hudson, 2016; Uljens and Ylimaki 2017). The term didactics can be explained by the didactical triangle below (Figure 2).

[7] Didactis in Sweden also has a connection to tradition of German–Nordic of Didaktik (Bladh, Stolare and Kristiansson (2018)

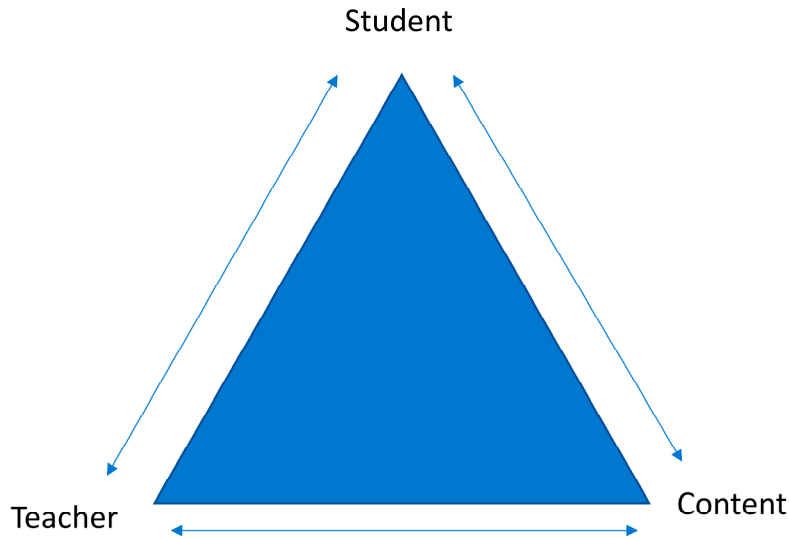


Figure 2. The didactic triangle

The didactic triangle in Figure 2 describes the processes that involve teaching and learning and emphasizes the relationship among teachers, students, and subjects (Hudson 2016). As I mentioned earlier, this also includes a focus on the classroom level of curriculum studies. Bladh (2020b:208) set the context of where these processes of teaching and learning in the didactic triangle take place:

> Framed by an institutional curriculum, professional teachers interpret and bring life to subject matter and are the key to realizing the content's meaning and educational potential.

The use of the term curriculum-making could be seen as a step in to the classroom level, while still keeping one foot behind, in the programmatic level. The foot that remains in the programmatic level requires curriculum thinking and a professional reflective teacher to recontextualize the curriculum to the classroom, in that way curriculum-making (Bladh 2020b).

The term curriculum-making and the traditions of didactic are relevant for this thesis in terms of how the teachers use and interpret the curriculum in their teaching, and hence the recontextualization process and the reproducing of geographical knowledge in the classrooms. Both curriculum-making and subject didactics refers to teacher's agency as what they can do with the syllabus, which also is analyzed in this thesis.

Transnational curriculum and in-built issues

In this day and age, the curriculum must be seen in an international and global context (Wahlström 2014; Wahlström and Sundberg 2018). Curricula are not being made in Sweden and many other countries in insolation from the international and global discussions, ideas, and movements of what knowledge should be included in the curriculum. Although the curriculum in Sweden can be label as a standard-based curriculum (Sundberg and Wahlström 2012), The Swedish curriculum is created in a transnational context, as demonstrated by Alvunger, Sundberg and Wahlström (2017), and, as Sundberg and Wahlström (2012) also pointed out, two central aspects for the construction of lgr11 are denationalization and instrumentalism.

Wahlström et al. (2020) concluded that the curriculum in social sciences (civics) is characterized by social efficiency; that is, competencies and employability. Abilities are also strongly linked to the subject, which makes the concept a mixture of abilities related to competencies and subject-specific content. They also highlighted and compared the concept of competence with ability in the curriculum. They stated that competence differs from the ability in the Swedish context. The concept of competence can be linked to a more general context, while ability can be linked to a more subject-specific one. Thus, ability in the Swedish curriculum has a specific meaning. The connection of the abilities to the knowledge requirements means that it becomes something that the students must be assessed in relation to.

Another syllabus was studied by Rosenlund (2019). He stated that purpose and content in history are characterized by vertical knowledge, with the knowledge requirements being rather horizontally shaped. The vertical and horizontal knowledge is not consistent in the syllabus for history. This, in turn, can lead to misunderstandings when teachers are to use the curriculum.

The question of knowledge

Knowledge is a complicated concept that includes many aspects. According to Johansson et al. (2014), it is possible to talk about practical and theoretical knowledge, which also is relevant for knowledge in schools. Old philosophies based on Plato's, and later also Aristotle's, ideas of knowledge can illustrate this complexity within knowledge. Those philosophers divided knowledge into three parts: *episteme*, which is theoretical knowledge and is about gaining understanding or insight; *techne*, which is skill and can also be linked to craftsmanship; and *phronesis* – practical intelligence – which is about common sense, reason, and moral understanding. *Techne* and *phronesis* can thus be traced to more practical knowledge.

Biesta (2010) connected good education in modern society with effective learning. He stated that why something should be taught in school has been given less space; instead, the how-to question is discussed. The discussions are about efficiency and responsibility and not about what good education is really about. Biesta believed that education operates in three fields: qualification, socialization, and subjectification. These three fields are also purposes for learning. Qualification is about preparing students for working life and society. Socialization is about learning norms and values that maintain order, different ways of working in society on a social, political, and cultural level. The third field, individualization (or subjectification), is what Biesta called the opposite of socialization; instead, the focus is on working independently based on schemes to educate autonomous and independent students. According to Biesta, good education takes all of these fields into account. Biesta discussed whether subjects, such as mathematics, can create opportunities for students through subjectification.

Teachers uses their concepts of knowledge in practice; Carlgren (2009) discussed this in terms of an empirical and a formal cognitive approach. When teachers apply their view of knowledge to practice, it is an empirical cognitive approach, unlike the intended knowledge that substantiated the curriculum. Carlgren gave the example that teachers may factor hierarchical scale into complexity, even though the intention is that facts, understand, skills, and familiarity are at the same level. The empirical cognitive approach can be seen as a recontextualization of knowledge where the teachers interpretation of the formal cognitive knowledge is reproduced in the their teaching. The study in Paper 3 is connected to the making of the formal cognitive approach that the teachers should later interpret and recontextualize. However, to nuance the text in that paper, it is also an empirical cognitive approach through the different stakeholders' interpretations and experiences. The same applies to Paper 4, where the teachers' experience of the subject-specific abilities is a recontextualization between formal and empirical cognitive approach to the view of knowledge in the curriculum. Carlgren (2015) also proclaimed ideas about knowledge cultures and teaching practices. She wrote:

> There is always some kind of background, some kind of practice that characterizes the knowledge that is developed; a background formed consciously or unintentionally. As I have mentioned before, the design of school practice often forms an unreflected background to the knowledge that teachers and students work with. A conscious design of the background is about recontextualizing and repersonalizing knowledge by designing a practice and a context where the knowledge once again acquires a concrete meaning. (My translation, Carlgren 2015:220)

This quotation from Carlgren would mean that stakeholders and teachers in this research (Papers 3 and 4) are recontextualizing knowledge by interpreting the subject-specific abilities in different contexts. This would be in relation to a background – that is, a practicalization of knowledge – that is formed consciously or unintentionally, and can be more and less reflected.

Knowledge in Swedish schools can be different from knowledge in other schools (see knowledge in Swedish schools in the chapter on reforms in Swedish schools). Different terms and concepts, and also different meanings attached to them, can make it difficult and complex to compare. Several researchers have recently discussed ideas about knowledge in schools; some of these ideas that are relevant for the current thesis are presented below.

Subject-specific knowledge in relation to teaching

Deng and Luke (2008) based their theories on Doyle's division and then developed their reasoning to curriculum-making on the institutional level. Deng and Luke described three different perceptions on knowledge: (1) disciplinary knowledge, (2) practical knowledge, and (3) experiential knowledge. The first is connected to categorizing knowledge in different disciplines; the second is about the practical use of knowledge in reality; and the third is about knowing something in connection with experience and implications.

Powerful knowledge is a concept that was introduced in order to discuss what type of knowledge students should learn in school (Young 2013; Young & Muller 2013). This type of knowledge focuses on specialized knowledge (in terms of disciplinary knowledge) instead of what can be called everyday knowledge. Young (2013) emphasized that powerful knowledge should give students knowledge that is in addition to what is linked to their experience. This is also referred to as bringing knowledge back in (Young, 2008). Young and Lambert (2014) described three different kinds of curriculum in a knowledge-led curriculum that should be seen as a heuristic device. They divided the different kinds of curriculums into three different futures.

Future 1: "Knowledge is largely treated as largely given, and established by traditions … It tends … to be associated with one-way transmission pedagogy…" (2014:59)

Future 2: "Knowledge was no longer treated as given and not open to change but seen as 'constructed' in response to particular needs and interests." (2014:59–60)

Future 3: "… locate knowledge in the specialist fields and as consequence, does not treat knowledge as 'given' but fallible and always open to change though the debates and research of the particular specialist community" (2014:67). And, "It follows that

Future 3 curriculum rejects the a-social givenness of school subject knowledge associated with Future 1 and the skepticism about subject knowledge associated with Future 2" (2014:67).

The curriculum in Future 3 is knowledge-led, which can be explain by a meeting between student experience (Future 1) and disciplinary knowledge (Future 3). The geocapability project has put the idea of knowledge-led curriculum (Future 3) in the context of geography education (Lambert, Solem and Tani 2015).

Criticism against powerful knowledge is highlighted by, for example White (2018), who discussed powerful knowledge in terms of definition of subject in schools and in relation to everyday knowledge and aims for education in school. The relation with academic disciplines and aims for schools and school subjects can be complex, which also makes the application of powerful knowledge more complex. Also, critiques of powerful knowledge in a setting of geography education have been brought up by Roberts (2014); see the chapter on geocapabilities.

Carlgren (2020) also discussed powerful knowledge opportunities and shortcomings. She particularly pointed out the relevance of including tacit knowledge (Polanyi 1966) as part of knowledge in the curriculum. The tacit dimension is knowledge that is not easy to verbalize and not always in a person's awareness. A standpoint in Carlgren's discussion is theories of knowing and the known (Dewey and Bentley 1949). Knowledge can be developed in a relation between knowing and known. Carlgren (2020) argued that, in that way, powerful knowledge can be discussed in terms of both knowing and known, but that it should be more focused on the knowing than it has been by Young. What is called powerful knowledge also needs to be transformed into teaching in school (Deng, 2018b).

Another concept that is used to analyze teachers' relations among teaching, curriculum, and knowledge is PCK (pedagogical content knowledge), first introduced by Shulman (1986). PCK is a mixture of subject knowledge and pedagogical knowledge, but forms its own area of knowledge, where subject-specific pedagogical knowledge becomes central. In geography it would mean that teaching geographical content in a successful way would also include teachers having knowledge about how to teach geography and not just how to teach in general. Mishra and Koehler (2006) used PCK as a starting point to introduce TPCK (technological pedagogical content knowledge), which would include technological knowledge in the mixture of pedagogical content knowledge. The connection of TPCK to GIS and geography is something that Schubert and Johansson (2019) want to move forward to develop geography teachers in Sweden.

Competences, taxonomies, and a lot of terms

Different concepts are used for describing knowledge in school policies. The concepts that are used in different ways in the research material for this thesis are abilities, skills, and competences, and also taxonomies are used to put knowledge in different levels or in a progression. A presentation of these different terms is in Paper 3, with references to different implications of abilities (Sternberg 1998; Butt 2000; National Academies 2006), a nuance of skills in geography education (Wood 2013; Butt 2000), an account of competence as an international term (EUT L394/2006; DeSeCo 2001; Eurydice 2002) and examples of taxonomies (Biggs and Collis 1982; Anderson and Krathwohl 2001).

Forsberg (2009) identified several different typologies about different elements of knowledge that can be related to a more general meaning, and how they relate to each other. In international documents, for example, Forsberg distinguished the following typologies: key competencies (EU), key competencies (OECD, DeSeCo), qualifications from EQF - EU and ECVET – EU, and the Bologna typology. Forsberg further explained that these typologies affect the national curriculum in different ways and have differences in definitions. For example, key competencies that are also relevant in Paper 3 have different definitions that also differ from the view of knowledge in Swedish schools. Key competences in EU focus on knowledge, skills, and attitudes and key competences in OECD and DeSeCo is based according to Forsberg (2009:74) on "interrelated knowledge, cognitive and practical skills, attitudes, feelings, values and ethics as well as motivation." This is related to the four aspect of knowledge (facts, understanding, skills, and familiarity) that is the basis in Swedish schools.

Progression

One way to look at progression in education is through the spiral curriculum (Bruner, 1960). In the spiral curriculum, three main points can be made: (1) the same content or topic is taught several times throughout the whole time pupils go to school; (2) each time the teacher returns to that content/topic, a new complexity is added; and (3) the teacher connect the current teaching with the content in earlier teaching. Bruner advocated that a spiral curriculum can make the pupils develop knowledge from more simplistic to more complicated. Carlgren (2009) discussed complexity in terms of progression and teaching in Swedish schools. She claimed that teaching in different levels following lgr11 is partly about finding the right grade of complexity. The teacher must reduce complexity from the academic disciplines and higher levels to apply the view of knowledge in school to teaching of the syllabus in different grades and to individual needs.

The professional teacher

In relation to the teaching profession and setting the scene for teachers in compulsory school, it appears in *skola för bildning* (SOU 1992) that:

> A professional teaching activity involves taking positions on knowledge, learning and teaching as well as on how these are translated into the teaching activity. Such an activity cannot be governed by regulations on its design. Instead, it is the interplay between the teachers' theoretical ideas and the practical design of the activity that should be the basis for an increasingly reflected practice. (SOU 1992: 29)

Biesta (2010) stated that the professional judgement in the teaching profession is a mixture of considering what is possible to do and what is desirable. Teachers need a model for how to act as professionals, which takes into account that teachers operate in non-causal practice, where the teacher's moral considerations also play a role, and is therefore also evidence-based practice problematic.

Brooks (2016a) introduced a model for acting professionally called a professional compass. Brooks wrote: "If teachers can be seen as working in professional landscapes, then they need a professional compass to navigate those landscapes" (2016a:127). Brooks explained this in terms of professional knowledge landscape and connected it with a teacher's identity. She also described that the landscape consists of the complex interrelation between academic disciplines and school subjects and the teachers' recontextualization of the school subjects. The personal identities of the teachers are an essential part of the compass and are connected to teacher making values. The values can be a variance of laws, school adaptions, and individual values. For example, can subject identity be a crucial factor in how teachers recontextualize knowledge in school subjects.

The professional compass can help teachers with the following:

- Direct the teacher in their professional decision making (in this sense can be viewed as a part of their 'moral self', or moral compass, and, as such, can enable teachers to distinguish between teaching young people and seeking to educate them;
- Operate at a variety of levels within classroom practice and wider engagements in education and school life;
- Enable teachers to move beyond a 'delivery' mode of instruction to become 'curriculum makers' responsible for a locally relevant and responsible curriculum;
- Be seen as a powerful tool for individual reflection and meaning making, contributing to the teacher's professional identity, resilience and commitment. (Brooks 2016a:134)

The professional landscape can be described in different ways and will differ in different contexts. Arensmeier and Lennqvist Lindén (2017) described two different types of ideals for governing professions that also sets part of the Swedish context of the professional landscape: authorizing and auditing. The teacher ends up in the field of tension between these ideal types. This could be compared with Winter's (2017) conclusions about the fact that a teacher's autonomy, spontaneity, and creativity are limited by a strong focus on assessment criteria.

Another part of the professional landscape is how the context of recontextualization looks in Sweden in relation to teacher agency. Alvunger (2018) studied teacher agency in relation to lgr11 in Sweden. Three spaces of agency are defined where the teachers can act and make choices about teaching and content (Figure 3).

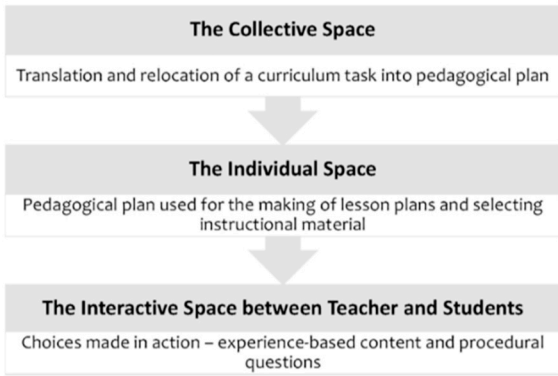


Figure 3. Space of agency (Alvunger 2018:488)
According to Alvunger, teachers can use the curriculum in three spaces of agency, as shown in this figure.

Subject-specific abilities can be explained by a hierarchical knowledge structure and that they create possibilities for teachers to make choices of content and to seek meaning with the teaching. The knowledge requirements, on the other hand, compel teachers to choose content that they could asses. In practice, teachers combine content in social studies that could be assessed, which Alvunger (2018:493) connected to the idea that social science subjects have a horizontal knowledge structure.

Bladh, Stolare and Kristiansson (2018) discussed powerful knowledge in relation to didaktik[8] and also Carlgren's ideas about knowledge practices. Linking powerful knowledge with didaktik and knowledge practices are also connecting knowledge in the programmatic level and the teaching in the classrooms. The researcher also discusses how collaborating in, for example, development circles (which include collaboration between teachers and researcher) about the transformations of knowledge – that is, the recontextualization process – can lead to the creation of a knowledge reservoir for development of the teaching profession.

In summary, teachers act in a professional landscape, where their values and judgments are essential for the recontextualization of school subjects and dependent on political and steering context, and the complex relationship between academic disciplines and school subjects. A professional compass can be introduced as a model to guide teachers in this landscape.

[8] Linking it to German–Nordic Didaktik and the model for critical-constructive didactics (Klafki, 1985/2001).

Method and methodology

This chapter presents my method and methodology. The chapter starts with a description of how the work to collect and process the material has taken place, followed by ontological and epistemological starting points. Sampling and materials are also presented. The qualitative methods of interviews, video-stimulated recall, and text analysis have been done with the mutual purpose of gaining insights into the recontextualization of geographical knowledge in different contexts. The chapter ends with discussions of ethics and reflexivity.

Conducting the research

My approach to these research questions was to first find out what I am interested in. Thus, I have formulated research questions that I will try to gather data to answer. I then collected data, then organized and analyzed the data, and finally used the analysis of the data to answer my research questions. This process was not linear and I went back and forward in these steps. For example, I changed the formulation of the research questions during the research. An abductive method was used to gather and analyze data, which can describe the research process as an interaction between theory and empiric (Alvesson and Sköldberg 2017; Meyer and Lunnay 2013). My background as a teacher working in compulsory has helped me as a researcher in the meetings with the teachers in school context, since I have experience of a similar experience. This has made it possible for me to have more of an inside perspective and a different and more profound understanding of the school context than someone without that experience.

I started from the fact that I wanted to understand what is meant by the concept of subject-specific ability. When the new curriculum came in 2011, I worked in compulsory school. New conceptions of knowledge for the subjects were introduced and I became curious about how these have become, how they should be used, and how they would be perceived by teachers in the school.

The teachers in the school became my first focus. I wanted to find out about the teachers' experiences of subject-specific abilities. After I sent out invitations in *Geografiska Notiser* and used the Geography teachers Association in Sweden as a network to get hold of teachers, seven teachers joined the research. I contacted these teachers and their schools to plan and conduct the study. I filmed each teacher for two lessons. These recordings were then used afterwards as stimulated recall in an interview with the particular teachers. Due to circumstances in schools and in the teachers' work, I was able to film two lessons in five of the teacher's classrooms and conduct the

interviews afterwards, and in two cases, filming of the lesson was conducted with subsequent interviews. I then returned for another interview without filmed material. The interviews that are based on the filmed material concern the teachers' experiences of the lessons that were filmed, with the subsequent interview being about the teachers' experiences about his or her teaching as a whole and over time. The focus and data used for Paper 4 is the teachers' experiences (comments) of the lessons filmed, so the subsequent interviews have not been used in that paper.

At the same time, I have been thinking about what the intentions of subject-specific abilities are. After a research seminar with PhD students at Lund University and an exchange teaching at Humboldt Universität, I had the idea to interview different stakeholders to examine more closely how the syllabus came about. I contacted the head of project of making the curriculum at Swedish National Agency of Education. By interviewing him, I found other stakeholders who were central to the process. I contacted and interviewed one stakeholder who participated and wrote the syllabus. I also made contact with the Ministry of Education in order to be able to do an interview with the relevant individuals in politics and decisions related to the making syllabus of geography; however, my request for an interview was denied. Instead, I have looked at formal documents and the mail exchange that took place between me and the Ministry of Education. In addition to the interviews with the stakeholders, an additional person who was responsible for subject groups was identified as relevant to interview at the school administration, and three more stakeholders involved in writing the syllabus in geography were identified and interviewed. When interviews were transcribed and analyzed, additional stakeholders were identified in the form of reference groups and reference schools. In order to obtain data on these stakeholders, I conducted research on the school's archives and the documents relating to communication and work with these stakeholders. Additional material was obtained in writing from stakeholders at the Swedish National Agency of Education in the form of an informal document that was used to guide participants in the process.

I received information on an international publication about focusing on progression in the geography subject. Together with Lena Molin, we sent an application to join. The task was to analyze what progression in the geography subject looks like in Swedish schools and in steering documents, and to identify problems and challenges regarding this subject. In order to lay a foundation for my research, this task was a good fit. In this way, I was able to analyze what steering documents and previous research describe what progression and assessment mean in relation to school geography in Sweden. Molin focused on writing about national exams and I focused on analyzing what progression is in the subject.

At a conference in London about geography education I presented research on how geographical thinking is reflected in the Swedish syllabus. The conference theme gave me the idea to do a content analysis of the syllabus in geography, with theories of geographical knowledge as starting point. After using theories about geographical thinking to analyze the syllabus in geography, through using different matrices, it became clear that these theories were important for understanding what geography is and can be. This led to Paper 2. The results of the analysis of explicit and implicit knowledge in geography have proved relevant to my other studies.

Methodology – ontological and epistemological approaches

Faye (2012) described that there is no single description of reality – it can be several at the same time. I have used this approach in my research and also a part of the phenomenographic approach. For example, I had seven teachers in my study and each has their own description of their reality. I wanted to collect data of their descriptions, which also meant collecting data of experience of seven different realities. Therefore, my aim was not to describe one reality – that can be told as the true reality – instead, I wanted to lift forward the variations of experience of different realities.

In essence, phenomenography is about research investigating qualitative differences in how the world can be perceived or experienced or how different phenomena can be perceived/experienced. Marton described the use of phenomenography as follows:

> In phenomenography we try to describe how the world around us might be seen or experienced. We try to capture ways of seeing and ways of experiencing in terms of dimensions of variations, values and instances. (Marton 2015:113)

Marton also argued that it is possible to discern a methodology in the phenomenography that can also be used to visualize what data is collected in a research project: "… the methodology present patterns of variations and invariance experienced by the researcher as tools and objects of description" (Marton 2015:117). Therefore, it is mainly the methodology of phenomenography that is relevant to this thesis. The data collected for my dissertation can in this way be seen as invariance of experiences and mainly relates to how teachers experience their teaching and how different stakeholders experience processes and intentions.

To anchor the view of knowledge acquisition of the world in relation to research, phenomenology has had an impact on ontological and epistemological approaches. The world can be perceived in different ways and every perception or experience can be

subjected to study. Hence, the study of different experiences of teachers' interpretations and stakeholders' intentions.

Marton believes that the world is not detached from the person. He proclaims:

> The meanings emerge as relationships between person and world. It is in this sense that object and subject are not separate. Person and world are connected to begin with. There are not two worlds, a subjective one and an objective one, there is one world only, and that is both subjective and objective. (Marton 2015:108)

This can also be related to the fact that a researcher is related to the material and method that are used in the research (Faye (2012; Longino (1990). The researcher's interpretations and background affect the results, although reflexivity (see chapter about reflexivity in this research) can increase the validation.

In this way, Fayes' (2012) initial statement in this chapter about how there is no single description of the reality also become relevant. Marton related to the realities that are studied and that these realities should be studied in an interrelation between the persons and these realities to understand different meanings. The meanings in this research refer to how teachers and stakeholder experience different aspects of education and teaching.

Marton (2015) further explained that it is possible to make a difference between first-order and second-order perspectives. The former contains statements about how the world is created, or how the world is. The latter contains statements about how the world appears to someone, or how the world is experienced by someone. The world and different phenomena in the world can be perceived in different ways. In this way, phenomenography examines how a phenomenon can be perceived in different ways: "Phenomenography is about the different meaning of the same things" (Marton 2015:106). The data I collected from interviews with teachers and stakeholders do not describe the same experience of the world; instead, each experience and interpretation of the interviewees gives variations of experiences of the world. Data in the dissertation consists of different experiences of the world that can provide examples of how the world is perceived, which can, in turn, be placed in the second-order perspective. The unit that can explain the data that are collected can be described as follows:

> Specifically, we will argue that a conception can be characterised as composed of both a referential aspect – i.e. a particular meaning of an individual object (anything delimited and attended to by subjects) – and a structural aspect – i.e. the combination of features discerned and focused upon by the subject. (Marton and Pong 2005:336)

Here, a conception is another term for experience. The experiences of the teachers and stakeholders can be seen in both a referential and structural aspect. The teachers discussed experiences from their lessons, which reflect the experiences of their teaching. The same applies to the interviewed stakeholders, who talked about intentions and processes in creating the syllabus in geography. These intentions and processes are based on the stakeholders' experiences of creating the syllabus in geography and thus reflect their perceptions of what has happened. By looking at these experiences it is possible to find zones of conflict in processes (as in Paper 3) or different types of relationship in teaching to subject-specific abilities (as in Paper 4).

If a person tells about their experiences, he or she also expresses this, which also says something about how this phenomenon is perceived. That would mean that, if the person can tell you about it, it is also an experience. Thus, the person cannot tell about experiences they have not had. Marton explained:

> They can, of course, deceive us, pretending not to be able when they are, but they cannot possible pretend to be able when they are not. (Marton 2015:115)

In relation to my studies, the teachers and stakeholder tells me their experiences, which in Marton's words would mean that these experiences reveal how a phenomenon such as subject-specific abilities is perceived.

An extension of phenomenographic research is to break down categories of descriptions and investigate the learning of different phenomena. The idea is to investigate critical aspects in variations of different categories in order to discover relationships (Marton 2015: 107). While I have not done this in the present dissertation, it could be an extension to further research. A future study about how student learn geography knowledge could implement critical aspects in variations of students' experiences to accomplish new research and understanding in the field of geography education.

Sampling

The various papers deal with different research issues and have resulted in different samplings. The first paper contains relevant steering documents such as the curriculum, comments on the syllabus in geography, reports, and experiences of national tests in geography and geographic didactic research in Sweden. The sampling in the second paper is the syllabus in geography.

In Paper 3, the sampling is about different stakeholders who participated in the process of making the syllabus. Here, the sampling is the stakeholders who have had an influence of making the syllabus in geography. During the interviews conducted and

in the documents describing the process, I have tried to identify additional stakeholders. The following stakeholders are represented in the study: head of project of making the curriculum at SNAE, subject responsible for SNAE, all four persons who wrote the proposals for the syllabus, reference groups, reference schools, and the Ministry of Education. It is possible to identify additional stakeholders who may also have had influence, but I have limited the study to those listed above.

In Paper 4, the selection is about teachers for the study. The criteria for joining are having a geography teacher education and working at a compulsory school in Sweden in years 7–9, and teaching geography at that level during the research period. Another criterion was that I wanted a varied grade of experience with the different teachers, which was also the case in the study. After searching for teachers through an advertisement in *Geografiska Notiser*, through the Geographical Teachers National Association's contact network and through other contacts, I found seven teachers who could participate in the study. The teachers work at different schools; two work at the same compulsory school, but in different sections of the school. My aim was not to conduct analysis linked to factors such as gender or age, so these were not relevant to the sample. Nevertheless, I can report that three of the teachers were women and four were men. There was also an age spread between the participants. A pilot study was conducted, as one of the teachers was interviewed before the other six teachers. The pilot study was used to reflect how the research design was working. Reflections from the pilot study led me to make some changes in relation to the interview guide for the interview with video-stimulated recall by adding and clarifying the focus questions.

The sampling of teachers can be discussed in terms of consequences for the research. The teachers who were included in the study in Paper 4 had volunteered, which can also reflect that these teachers are engaged in their work in teaching geography. This engagement can also be part of the results of the experiences collected as data. However, it is still experiences that the teachers had and are therefore also relevant to study.

Interviews in Paper 3

The interviews in this study were semi-structured in order to get a flexible structure that also gives the researcher the possibility to ask follow-up questions (Kvale and Brinkmann 2009). I had an interview guide with questions and orientations, but was able to ask other questions and different follow-up questions. Six stakeholders were interviewed and follow-up interviews were conducted with two of them, to get more data on experiences that had been collected in the first interview. The interviews were conducted through mobile phone and computer programs such as Skype and were

recorded in order to be able to conduct the interviews in temporal and distance circumstances, and lasted approximately 45–60 minutes. The interviews were transcribed and analyzed, as described in the data analysis section. The first three interviews were conducted in 2014 and the last three in 2018.

Interviews with stimulated recall in Paper 4

I used video recordings as stimulated recall in Paper 4, following a method inspired by Mikael Alexandersson (1994). This method can be described as VSR (video-stimulated recall) and the interviews that follow are based on the teacher's reflections on the recorded lesson (Lyle 2003).

The teachers' lessons were filmed and then used as stimulated recall during the interviews. Two lessons were filmed of each teachers' lessons, except for two, for whom one lesson was filmed. The teachers looked at and commented on their own teaching shortly after the recorded lesson was done, and I was able to ask questions in the meantime. To guide the teachers, a document was visible with focus questions. We watched the recorded lesson together as soon as possible after the recording, which also mean that I didn't watch it before the teacher did. Teachers were able to pause the recording when they talked about something or answered a question. With the stimulated recall I was able to get the teacher to talk about subject-specific abilities in relation to their lessons. A total of 12 lessons were recorded and commented on. The recorded lessons were approximately 45–60 min in duration. These comments were transcribed and analyzed. The interviews were conducted during 2013 and 2014.

In the study, another seven semi-structured interviews (Kvale and Brinkmann 2009) were conducted, one with each teacher. The aim of these interviews was to gather data about the teachers experiences of lessons that were not filmed, and to get the teacher to talk about their teaching of geography in a more general way. The interviews were transcribed and analyzed, but were not used in the research. The reason for this is that comments of the video-recorded lessons gave enough material to analyze the lessons that was in focus. The following interviews were mainly about setting the teachers work in a broader picture, including lessons that was not filmed or observed, which became less useful in relation to the research questions setting the filmed lessons in focus.

There are both advantages and disadvantages in using VSR. The video-stimulated recall helped the interviewee remember what happened in the lesson, and enabled the teacher to see and reflect on their own teaching. It also contributed to both the interviewee and the researcher being able to discuss what happens on the video, and pause, rewind, or fast-forward the video when necessary. In that way VSR can be linked to connect theory

with practice (Reitano and Sim 2010); that is, also to get the teacher to reflect on their teaching. Although an issue can be what the researcher chose and not chose to film. In the classrooms I chose to film the teacher, but it was still other things going on the classrooms that I was not filming. When it comes to how the viewer is influenced by the format film, the researcher chooses to film as well as how the material itself is processed (Goldman 2007). This means that the researcher chooses to film something in the classroom and also chooses not to film something else. My choice here was that I wanted to follow the teachers as much as possible and therefore focused on filming him or her.

Another possible disadvantage is that teachers watching themselves will generate enthusiasm and criticism about their own work. Goldman (2007) emphasized that video is a powerful medium that influences the viewer through its various forms. In this way the teachers were affected by seeing themselves on film. They sometimes wanted to defend their actions or point out why things happened in a certain way.

Analysis of text document

In Paper 2, a text analysis of the subject-specific abilities in the syllabus in geography is carried out through a qualitative content analysis to analyze the meaning of text (Cohen, Manion and Morrison 2011). The content of the subject-specific abilities was compared with theoretical ideas of what geography is. In that way, units are identified that will be the sample for analysis and then coded and categorized in relation to theories of geographical knowledge (Ezzy 2002; Cohen, Manion and Morrison 2011). By formulating abilities and theories in matrices, I have compared and distinguished similarities and differences, which in turn led to what is explicitly and implicitly expressed in the syllabus. The content analysis is not based on frequency of words; instead, it is the meaning of the words that are analyzed in terms of what is implicit or explicit geographical knowledge, analyzed in a coding frame, which will make the content analysis qualitive rather than quantitative (Schreier, M. 2014).

The research material in Paper 3 is partly a text document that consists of unofficial documents, protocols and meeting notes, emails and communication of feedback between stakeholders in the process making the syllabus in geography as a policy document. This material has undergone a content analysis (Cohen, Manion and Morrison 2011) similar to the interviews with the stakeholders in the same paper, which included the structure of coding process and intentions and continued as shown in Figure 4. In this way, the written material analyzed in this paper is both transcriptions of the interviews (as described above) and protocols and other documents involved in the process.

Data analysis of interviews in Paper 3

The data analysis of the interviews in Paper 3 is a content analysis (Cohen, Manion and Morrison 2011:559–569) that is done manually. I have coded the transcribed material through categories. Two main categories were made and then three subcategories. Figure 4 illustrates this. Process and intention are the main categories. Subcategories are six steps in the making and different understanding of subject-specific abilities. This led me to the subcategory of zones of conflicts.

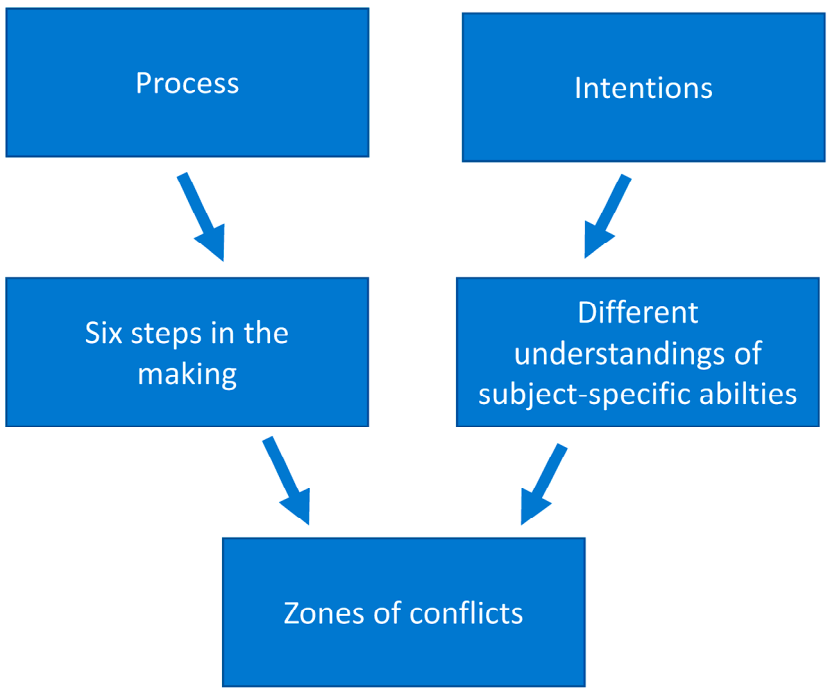


Figure 4. Data analysis of interviews with stakeholder

Data analysis of interviews in Paper 4

A content analysis was used to conduct data analysis, manually, of the interviews in Paper 4 (Cohen, Manion and Morrison 2011). An abductive approach (Alvesson and Sköldberg 2017) was applied and the content analysis was qualitive in terms of focusing on the meaning of the words expressed in the interviews, which were analyzed through coding frames (Schreier, M. 2014) .

The data analysis of the interviews in Paper 4 comprehends teachers' experiences, which have been coded into two categories: (1) a conception of the concept of ability that is subject-specific to geography, and (2) a generic conception of the abilities. In these two categories 13 sub-categories were made, five in relation to the first main categories and seven in relation to the second group of categories. These categories and subcategories are not fixed; instead, teachers can have several experiences of their interpretations in relation to their teaching and the experiences can be mixed.

Ethics

All research in the thesis have been conducted according to ethical guidelines that were published by the Swedish Research Council in 2011 (Gustafsson et al. 2011)[9]. No sensitive personal information has been handled.

Consent was gathered from all participants' in the research. Paper 3 involves interviews with stakeholders. All participating stakeholders in the interviews gave consent. Paper 4 is about teacher interviews and the teachers' lessons was filmed. The teachers have given consent to participate. All students shown in the video have given consent to appear in the video and their caregivers have also given consent, either in writing or orally. Written consent from pupils and parents was collected to the greatest extent possible, but in some cases it was necessary, for practical reasons, for consent to be oral. Students who have not submitted any consent or who have refused to participate have been placed so that they are not noticeable in the video recording.

All persons involved in the research are anonymous. In this way, information about the participating teachers does not appear in the dissertation so that it is possible to identify them. Concerning the actors in Paper 3, it is possible to find out who they are because their role in the process becomes clear. For example, it is known who sat in the writing group for the geography syllabus. The participants (stakeholders) have given their consent to this. However, I have anonymized their names in the paper because it has no bearing on the results.

The data material was stored securely during the research and there is also a plan following the suggestions from Lund University for storing and archiving the data after the dissertation.

[9] This publication was revised in 2017 (Gustafsson, Hermeren and Pettersson 2017), which did not change any of the ethical considerations for this research.

Reflexivity

Longino (1990) wrote about objectivity in research and explain different approaches to handle this issue. For example, Longino (1990:173) wrote that Kuhn proclaimed that context and assumptions are part of the research and the researcher's interpretations. The researcher will make choices based on assumptions and make interpretations in his or her research. Faye (2012:58) also takes this up in relation to that explanation and interpretation, that the researchers' interpretations are a part of the explanation.

My research is not objective; as a researcher I affect my research. It is important to be aware of this and work with reflexivity. In that sense, objectivity is not reachable but perhaps something to strive for. The researcher is not neutral and his and her research is affected by his or her values and view of the world. Therefore, it is important to reflect and try to understand my influence on my research (Alvesson and Sköldberg 2017). An important matter in my research connected to philosophy of science is about this issue. Faye wrote about the issue of objectivity as follows:

> Thus, an explanatory answer is relevant and informative with respects to the context in which the question is placed and with respects to the background assumptions of the interlocutor and the respondent and perhaps their personal interests as well. (Faye 2012:59)

The validity of the interviews increases if I am aware of my approach (bias) through the interviews. By trying to minimize the fact that my attitude, opinions, and expectations affect how I ask the questions in the interview, I can increase the validity. However, I am aware that reliabilities decrease by not having the questions look exactly alike in all interviews; however, the benefits of conducting the interview with an interview guide outweigh the lost reliability in relation to my research questions. The teachers can also prepare and adjust their teaching for when I am visiting to do the research, which can affect the study. However, this prepared teacher is also relevant to study.
The risk of video recording is that it can affect the classroom. By having a camera in the classroom, the pupils and the teachers can be affected and adjust to being filmed. They can, in that way, be artificial for the camera. My experience is that both the pupils and the teachers became used to the camera quickly. Alexandersson (1994) had the same experience in his video research of teaching and different classrooms.

The place where the interview takes place is also important in order to get the most out of the method. It is important to find a place that promotes the interview being open and where the interviewee feels safe. The interviews with the teachers in the present study were conducted at the interviewee's workplace.

PART IV – ANALYSIS AND CONCLUSIONS

This section further analyzes, concludes, and discusses the results presented in the papers. My aim for this thesis is to study geographical knowledge as it is highlighted in the Swedish curriculum (years 7–9) and in different contexts, both in the process of making syllabus in geography as a policy document and how teachers interpret the syllabus in their teaching.

The first chapter continues where Molin stopped by introducing a new period: 2005–2020. Results from my study are placed in this period to conclude results and analyses from the papers. The second chapter concludes the research in Papers 3 and 4 about the recontextualization of geographical knowledge, and also provides a further analysis concerning curriculum theories and theories of geographical knowledge. The third part sets the research in the papers in a context of the professional teacher, analyzing and discussing the professional landscape of teaching geography in Sweden.

By concluding my research, the papers, and doing further analysis and discussion, my intention is to contribute to a deeper understanding of the curriculum and how geographical knowledge are recontextualized in different educational contexts. This research could be valuable to, for example, teachers in their professional development, policy-makers in developing the process of making a curriculum, and teacher trainers for understanding school geography and the teacher task to educate students about geographical knowledge.

A continued curriculum theoretical analysis of syllabuses in geography – 2005–2020

Lena Molin (2006) started a historical curriculum theoretical analysis of the syllabuses in geography in Sweden. The results of her study are presented in Chapter 3 (research in geography education). This chapter continues where Molin stopped and analyzes the period from 2005–2020. A compilation of research is presented in the background and theory, and my research in Papers 1, 2, 3, and 4 contributes to this chapter and analysis.

In the making of the syllabus of 2011 in the programmatic level and in relation to different stakeholders involved in the process, geography underwent a lot of discussion, revisions, conflicts, and disappointments of the end product (the syllabus in geography). Stakeholders described getting sustainable development into the syllabus for geography as a "fight", even though there were suggestions to exchange geography with sustainable development before. Stakeholders in work teams are disappointed with the knowledge requirements made by SNAE, also with political changes of the syllabus, which mean, for example, more from near to far and more place-location knowledge in terms of memorization. The discussion of landscape in school geography in Sweden is a great example of how complex the process can be. Landscape as a term of regional administration has been in focus for teaching in geography for a long time. The work team that wrote the new syllabus first suggested that landscape as a term should maybe not be included, arguing that this would perhaps make the teachers less eager to build their teaching around the traditional way of teaching about them. The more complex term landscape – which is also a key concept connected to human and physical landscape – is an important part of the discussion, but the other cause – to avoid selective traditions – is perhaps even more important in the discussions. Other subject specialists disagree and think that landscape as a key concept is necessary to have in the syllabus. It landed in a first version of the syllabus with little about landscape in the traditional way, but a revision was made where politicians added content about the landscape in traditional way and that was then mixed up with the more complex term – leaving the teacher to interpret and use in their teaching.

The discussion about the value of place-location knowledge was present in the lgr11, when politicians added such an element to the syllabus. This is also discussed by Hennerdal (2015). In a historical view the discussion is somewhat different. The discussion in the 1950s and 1960s about the same issue was between subject specialists, who also had a great influence on the syllabus. In 2011 the discussion was triggered when subject specialists reacted disapprovingly to the political changes of the suggested syllabus. The selective traditions were strong and were upheld by the politicians.

My research indicates that geographical knowledge is partly implicit in the subject-specific abilities in lgr11. In 1994, geographical knowledge in spatial terms was more explicitly expressed in the syllabus of geography through terms like place, location, distance, location, and spatial interaction. However, it also a matter of how the different parts of the syllabus is related to each other. The syllabus in 2011 had a purpose written before the abilities, in the syllabus, that expressed geographical knowledge more explicitly. However, the purpose has not been included in the same way as making, for example, knowledge requirements. The work team's intentional symbiotic relation between purpose and abilities is lost when the abilities are recontextualized in a different context: (1) in constructing the knowledge requirements, and (2) in teachers' practice depending on how they interpret the abilities.

In the classrooms and in the teaching it seems that selective traditions still have a major impact, even though the effect of national tests has not been researched. My research shows that teachers of geography have a variety of experiences of using the subject-specific abilities, both in connection to modern geography with a focus on place, scale and interaction, and more selective traditions with a focus on map-reading and name of locations. Another aspect is that teachers work with the abilities in a generic approach in different ways. A variety of experiences of the generic approach could be seen in the teacher's interpretation of their teaching. These generic approaches, which can also be subject-integrated, are combined with different subject-specific ways of dealing with the abilities. The same teachers can have several different experiences in the same lesson.

As shown in Paper 1, learning progression is manifested in different ways in the curriculum, between levels as in years 1–3, 4–6, and 7–9 and in these levels through value expressions. The abilities function as goals for the whole compulsory school from years 1–9. In a further analysis, the learning progression can be seen as both in spiral division and in division of content in relation to complexity. In this way, content can return in different levels varying in complexity, but also be divided as in less complex and more complex content. The teachers shall also reduce complexity from disciplinary knowledge to different levels in school geography, in an attempt to handle the different approaches of learning progression that appear in the curriculum; this is also an opportunity for teachers to make choices in relation to the syllabus.

The impact of the instrumental context of the curriculum, as in how teachers are affected and steered by the result-oriented conception of knowledge that feature the reforms after 1994, also set a mark in terms of how teachers deal with subject-specific goals and geographical knowledge. Biesta (2010) spoke about how good education in the modern society is represented by effective learning and the "why" is in less focus in teaching different subjects. A greater focus on the "how" makes education in school

more related to efficiency than developing actual knowledge. Teachers in this study make choices related to their interpretation of the abilities, but that can also be compared to other studies that show the instrumental impact. Also relevant is the fact that different stakeholders have different focus in the making process of the syllabus. The conflict connected to steering and communication that occurred between the work team and the SNAE lead to asymmetry between aims for the subject and knowledge requirements, which can be related to the SNAE's overall task of making the curriculum clearer and better organized (in terms of results, for example) and the work teams' aim to capture geography as a school subject. Rosenlund (2019) also argued that there is a lack of consistency in the syllabus, although his analysis focused on the subject of history.

Recontextualization of geographical knowledge through zones of conflict to the classroom

The results of Papers 3 and 4 can be seen through the lens of a pedagogical device; that is, recontextualization and reproduction of geographical knowledge. In Paper 3 the governance arena is in focus and the recontextualization is carried out by different stakeholders (agents) making the syllabus as a policy document. Geographical knowledge can be analyzed in these processes of recontextualization. In Paper 3 the setting changes to the classroom arena, where realization of the syllabus occurs. He, geographical knowledge can also be analyzed in teachers' experiences of subject-specific abilities as goals for the school geography.

Geographical knowledge in zones of conflict

In relation to how geographical knowledge is recontextualized in the making of the syllabus, I will develop the analysis of the zones of conflicts in terms of the pedagogical device and theories of geographical knowledge. The zones of conflict from Paper 3 are: politics and science, teacher experience and subject expertise, diverse subject expertise and subject didactic expertise, communication and steering, and subject interests and general interests.

Geographical knowledge is affected by different stakeholders in the process, and selective traditions in geography are continued in the syllabus. The tradition of near to far and place-location knowledge gets consolidated by politicians. Researchers' interests

influence the syllabus and are discussed through the work team and also with and within the reference groups (that are not unified).

A strong representation of physical geography in the work team also reflects the outcome of the syllabus. Teachers and researchers in a work team are united, although teachers feel subordinated to science. Reference schools have more practical issues. SNAE lead the process and has clarity and a more general approach to different subject suggestions, and the communication and steering leads to in-built problems in the curriculum.

Geographical knowledge as geographical advantage, thinking geographically, and geospatial thinking are implicit in the goals of the syllabus, which can be connected to the work team working with the goals, as integrated with the purpose of the subject. Aspects of geographical knowledge that are implicit the subject-specific abilities become more explicit in relation to the purpose in the syllabus. The work teams' intentions were, in that way, to see the subject-specific abilities as a part of the purpose rather than as comprehensive on their own. However, the subject-specific abilities were used in a comprehensive way, creating the knowledge requirements, which can lead to an in-built with geographical knowledge being represented in different ways in different parts of the syllabus.

The classification and framing are dynamic and change in regard to different stakeholders in the process of making the syllabus. In terms of vertical knowledge, the work team had an essential part in taking that in, representing researchers and academics. In the work team, these academics meet teachers who represented experience, which could be argued to be more horizontal when teachers also connect to the students' everyday life. My study has shown that the teachers' experience can be subordinated to that of the academics making the syllabus. Thus, teachers' experiences of geography were subordinated to theories and research in human geography, physical geography, and geography education. This would mean that the vertical knowledge has a great impact when the work team made a suggestion if the syllabus, and that horizontal knowledge did not have as much influence. However, when politicians decide the final version of syllabus, they also add to it, remove from it, or change it, as discussed in Paper 3. These choices are not always based on science, and can instead be connected to selective traditions and own experiences of geography. In this part of the process the vertical knowledge gains less impact and horizontal knowledge is more influenceable.

The work team had its own intentions with the subject-specific abilities, trying to make them about geography as much as possible, which would mean a loose framing and strict classification. However, the SNAE would have a more general approach to the

subjects, moving content between subjects and rewriting knowledge requirements, which – one could argue – sets a weaker classification.

Stakeholders' interactions in the conflict zones in the field of tension

The field of tension (Bladh 2014) that was describe in the chapter on research in geography compiles different aspects of the context of school geography in Sweden. The process of making the syllabus in geography and also teachers' interpretations of geographical knowledge can be set in this field of tension. Figure 5 shows the stakeholders' interactions in the conflict zone placed in the field of tensions, which can reveal tensions between the stakeholders and in the zones of conflict.

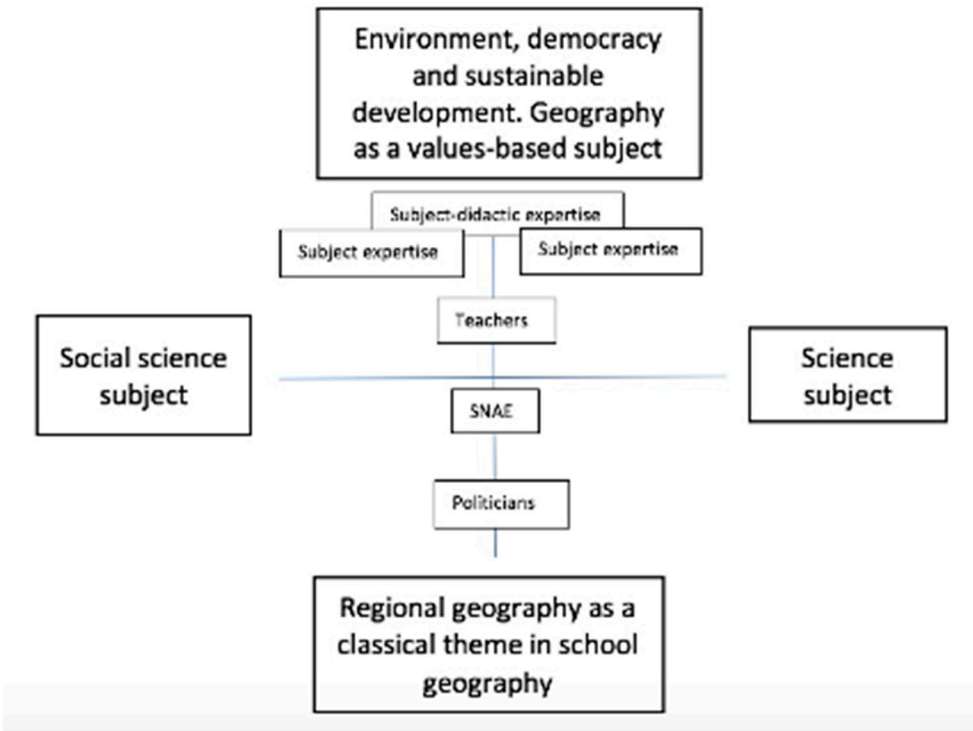


Figure 5. The zones of conflict in field of tension
This figue show the stakeholders researched in Paper 3 in the setting of Bladhs (2014) field of tention.

The placement of the different stakeholders' interactions in the field of tension can be further discussed and varies depending on context. However, subject-didactic expertise and subject-expertise tend to view geography as a value-based subject connected to the environment, democracy, and sustainable development, with the difference in various application of social science subject or science, in this case represented and affected by human and physical geography. Politicians, on the other hand, have a tendency to interpret geography with traditional regional geography, and be neutral to geography as social science and science. Teachers and stakeholders at SNAE who were involved in the research in Paper 3 can be placed close to the middle and are, in that way, trying to include all the aspects in the field.

Teaching with subject-specific abilities in geography

Paper 4 presented and analyzed the results of teachers' experiences of subject-specific abilities. The interpretations covered 13 different experiences, five of which are subject-specific and seven of which are generic. Table 5 shows the different experiences.

Table 5. Teachers' experiences of subject-specific abilities
Teachers' experiences of their interpretations of subject-specific abilties in their teaching.

Subject-specific experience			Generic experience			
Place	Scale	Spatial frame of reference	Handle information/ source criticism	Take someone else's perspective	Connections – generic	Action
Connections – geography	Material and method		Free thinking /creativity	Democracy/ participation	Language skills	

These experiences of teachers' interpretations can be seen in light of different theories and discussions of knowledge. The subject-specific experiences in terms of place, scale, and connection in geography can, in an explicit way, connect to thinking geographically, geographical advantage, and geospatial thinking. A spatial frame of reference is a more implicit part of thinking geographically and geographical advantage. However, the spatial frame of reference is more explicitly connected to geospatial thinking. A spatial form of reference also needs to be set in a cognitive context (Binder et al. 2009), where the use of the term in my research is related to wider definition connected to setting geographical phenomena in a spatial context. The experience of materials and methods are more implicit in all of the concepts mentioned above.

The teachers can have several different experiences on the same lesson and can also mix the subject-specific with the generic. However, the focus of the generic can also take over, leaving the subject-specific interpretations secondary. The generic interpretations

can be linked to subject integrations and overall aims in school, but also to teachers' personal interests of what they want the children to learn.

An in-built problem in the syllabus, which was addressed in Paper 3 and also brought up by Rosendal (2019) can, I will argue, lead teachers to different interpretation of the syllabuses. The inconsistency in the syllabus of geography opens up for interpretations that can be less about geographical knowledge and more about the generic. Also, the standard-based and results-oriented structure leads the teachers to interpretations based on knowledge requirements, which can lead to implicit geographical knowledge being missed.

The subject-specific abilities also enable teachers to make choices concerning geographical knowledge that should be included in their teaching, which weakens the framing of the abilities. The possible choices that teachers have in their work can be analyzed and discussed though subject didactics and curriculum-making. It is relevant to consider similarities between these concepts in terms of putting the teacher's choices as an essential part of the teaching in relation to subject-specific abilities. The didactic triangle (see Figure 2) concentrates on the content-teacher-student relationship, and curriculum-making on content-related reflected choices from the teacher, Teachers should make choices with the subject-specific abilities as goals, but it is possible to do this in different ways (as my research shows), which leaves the subject-specific abilities as goals an important role in that processes in didactic and curriculum-making. If the implicit geographical knowledge in the subject-specific abilities (see results in Paper 2) would be included in the recontextualisation and reproduction of the school geography, the teacher must make choices to include it. These choices can also be linked to pedagogical content knowledge. Teachers have both content knowledge and pedagogical knowledge, but also need to use the pedagogical content knowledge to make choices to include geographical knowledge in a pedagogical or didactical way in the classroom. This would mean that teachers need to have pedagogical geographical knowledge to make choices related to the syllabus in geography.

The teachers can make choices about what geographical knowledge to include in their teaching, recontextualizing, in a reflective and/or unreflective way (Carlgren 2015), which also include how the teacher relates the geographical knowledge to the teaching practice and context. Thus, the teacher can recontextualize geographical knowledge in different ways depending on how he or she reflects on knowledge and teaching practice. The teachers in my study (Paper 4) make different interpretations of the subject-specific abilities, which would mean that their reflection on geographical knowledge varies and that they connect it to practice in different ways.

Another question concerns which knowledge the teachers should choose in relation to the goals and in relation to the possibility to choose (teachers must also follow core content and knowledge requirements in the syllabus of a subject). This, in turn, can be discussed in relation to powerful knowledge (Young 2008) and geocapabilities (Lambert et al. 2015), Biesta's (2010) subjectification, and Carling's knowledge cultures and teaching practices (2015), and proclaiming knowing in relation to different subject (2020). Powerful knowledge in geography would mean that the teachers make choices in relation to the subject-specific abilities, which is in line what Lambert (2015: 7) argued is meant by powerful, and can be exemplified by Maude's (2015) ideas of geocapabilities. Thus, the subject-specific abilities have the potential to be geocapabilities, depending on the teacher's interpretations of them and also when this knowledge meet students' experiences, as in a future 3 curriculum. Wahlström's (2014) analysis of knowledge conceptions in Swedish school after 1990 set a meaning-making characteristic of the curriculum of 2011 (lgr11), which can be related to the future 3 curriculum, where disciplinary knowledge meets student experiences. However, Carlgren (2020) stated that what is powerful knowledge should also be discussed in terms of the known in relation to the knowing. This critique can also be related to the need to transform powerful knowledge into teaching (Deng, 2018b), and White's (2018) and Roberts' (2014) reflections on powerful knowledge and the complex relationship between academic disciplines and school subjects. The teaching of geography, which becomes visible through the teachers' experiences of their interpretations in my research, shows examples of how powerful geographical knowledge is recontextualized through concepts of place, scale, and connection in geography into the classroom, but also how teaching geography could be connected to more generic interpretations when geographical knowledge is secondary.

The geographical knowledge that the students can learn in school that relates to the teachers' experiences of interpretations of subject-specific geography can be related to place, space, connections, spatial frame of reference, and methods and material. There are certain similarities in Taylor's concepts (2008). Skarstein and Wolff (2020) set the importance of scale in a teaching context, which can argue for an inclusion of scale for teaching about sustainability in geography, to understand issues in a perspective of time, space, and multitude. The terms world knowledge and relation thinking (Bustin 2019) are also comparable to the teachers experiences of subject-specific abilities. To orient oneself, world knowledge, for example, is part of the experience spatial frame of reference, and relational thinking is part of the experience of connections in geography.

Subjectification is one of Biesta's (2010) three reasons for learning. He connects subjectification with students learning to be autonomous and independent through, for example, different subjects. The role of a subjects can be highlighted in

subjectification. Geographical knowledge can be an essential part of educating students to independence and autonomy. Thus, subjectification, in terms of school geography, can also be an essential part of spatial citizenship education. Geocapabilities and subject-specific abilities can guide the teachers in that cause, but the concepts also need the teacher to recontextualize and reproduce geography, and thus reflecting on setting the knowledge in relation to the students and in the educational context

A professional compass for geography teachers

The metaphor of a compass can be used to guide teachers in their profession (Brooks 2016a). Seen in a Swedish context, a professional compass can be used to guide teachers and help them navigate in the classroom; that is, to make professional decisions related to the curriculum. In making decisions, teachers value different aspect of circumstances in school and they recontextualize the curriculum. The teacher's identity affects the decisions that teachers make, such as their subject identity. Similarly, teachers must consider the practice situations in school and make judgments about what is possible and desirable to do in different context (Biesta 2010). Different factors affect these judgments. For example, personal experience can have an impact on teaching-related choices for the teachers (Molin et al. 2015). Biesta (2010) suggested that a model to help teachers act as professions could be useful, considering both moral and evidence-based aspects of the judgements that teachers make. A suggested model is presented here grounded in Brooks' ideas of a professional compass, but adapted to the Swedish context.

The professional compass metaphor requires a professional landscape where it can be useful. The professional landscape for teachers in Sweden consists of circumstances for teacher agency. Alvunger's spaces of agency provide a starting point for the compass and open the way for discussing where teachers can make decisions about geographical knowledge in their teaching. First (the collective space), teachers take the curriculum to school, which is done collectively. Second (the individual space), teachers plan their teaching, make lessons, and chose content and material. Third (the interactive space), the planning is made in action and the teachers can do choices during the process of teaching. Another part of the professional landscape in Sweden is the field of tension between authorizing and auditing.

Subject-specific abilities are hierarchical and open the way for teachers to make choices about what to teach. In that way, they enable teachers to include different aspects of geographical knowledge. However, knowledge requirements make teachers choose which content to assess. Alvunger (2018) stated that teachers' work in social sciences

overlaps with the subjects so that they can assess subjects at the same time, which can be seen as a horizontal structure in the social sciences, including geography. The tension of authorizing and auditing becomes visible in teachers' handling of these different aspects of the syllabus.

In the Swedish professional landscape for teachers, following a professional compass can help teachers navigate in their teaching of school geography:

- Teachers have the possibility to act in different spaces of agency where they can make choices that involve geographical knowledge. These spaces in lgr11 are: the collective space, the individual space, and the interaction space between teachers and students. A professional teacher makes reflected choices in these spaces that are underpinned by both disciplinary knowledge and teachers' experience – connecting geographical knowledge to students by relating to their experiences.
- Awareness that teaching is also about making judgments and values. Teachers identities are a factor that also have a role in teaching. A professional teacher reflects on them in, for example, subject identity, and makes choices in their teaching that are not only based on their personal experiences, but also on choices that can facilitate the relation between and disciplinary knowledge and school subjects.
- Both collectively and for individual professional development, teachers should discuss the recontextualisation of geographical knowledge with each other and in contact with researcher. In that way they can enlighten others and be enlightened about different aspects of recontextualization of geographical knowledge.

Familiarity in geographical knowledge

A Swedish take on knowledge in school is the fourth aspects of knowledge – familiarity– which is also connected to tradition of *bildning* and tacit knowledge. Students' judgement leads this aspect. Familiarity is a dialectic non-hierarchical part of facts, understanding, and skills, and in this way also part of a practical and theorical knowledge symbiosis. One more question can be asked: can familiarity be written as geographical knowledge?

Carling (My translation, 2015:110) wrote about familiarity in relation to reading and writing:

> Familiarity with reading and writing poems is something other than familiarity with taking on a 'regular school assignment'. This has consequences for understanding. Identifying sentence parts in a sentence presupposes a skill that is not identical to what is required when they are to be broken out into new ones. Working with subjects and predicates in relation to a poem gives a different kind of familiarity than doing it in relation to a text that has no other function than to contain subjects and predicates. Replacing the subjects and predicates makes this difference clear.

This quotation says that understanding of the function of different content, as subject and predicate, is vital to becoming familiar with it and for students to be able to put them in different contexts and situations.

In geography, this could mean that familiarity would include that students would be able to understand or "read" a landscape. If a student goes outside and sees a hill, they would be able to analyze why there is a hill there and how that hill was made. Several different factors could help answer these questions, such as geomorphic processes and human-environment interaction. Students will also need facts, understanding, and skill to figure out the questions about the hill, but also familiarity; that is, knowing the functions and using them in new situations and context. If the students are familiar with geographical knowledge, they would be able to understand that why the hill is there and how it came to be; this is a complex question within a spatial and historical perspective.

Summary

This thesis is a curriculum study in geography education that analyzes the recontextualization of geographical knowledge in the processes of making a curriculum – as in a syllabus in geography. Following the reform of the curriculum for compulsory school in Sweden in 2011, subject-specific abilities were introduced as goals for the subject. The concept of subject-specific abilities is the main focus of study and can be seen as a red thread throughout the thesis. The research questions focus on geographical knowledge among teachers and different stakeholders' experiences, as expressed in different documents.

The thesis also includes an overview of geography education research in Sweden and from an international outlook, and a historical background of academic and school geography in Sweden. The research fills a gap in terms of studying the curriculum reforms and interpretations of it at a programmatic level, a classroom level, and recontextualization in these levels and in between. Another gap that the research fills is doing research on school geography in compulsory school, which has been very limited in a Swedish context.

Theory and methods

Curriculum theory and theories of geographical knowledge and education lay the foundation for the analysis in the research. Curriculum theory considers both the Anglo-Saxon tradition of curriculum-making and the Nordic-German tradition of *Didaktik*, in being able to find synergies that can be used in the thesis. Levels (Doyle 1992) and arenas (Wahlström 2014) of the curriculum are used as key concepts, as well as pedagogical device and recontextualization (Bernstein). The processes of making a curriculum can be placed in different arenas or levels, and this research concerns the governance and the classroom arena, or the institutional (programmatic) and classroom level. Bernstein's pedagogical device and curriculum theory are used to analyze the recontextualization and reproduction of the geographical knowledge. In relation to the professional teacher, this is further analyzed through spaces of agency (Alvunger 2018) and the model of a professional compass (Brooks 2016a).

Theories of geographical knowledge, such as thinking geographically, geographical advantage, geocapabilities, and geospatial thinking, are used to analyze the geographical knowledge in a setting of school geography in Sweden, with a focus on subject-specific abilities. Also, under consideration are Young's (2008) theory about powerful knowledge, Biesta's (2010) thoughts on good education and subjectification, and Calgren's (2015) ideas about knowledge practices.

The methods used to conduct the research are qualitative and consist of document analysis, semi-structured interviews, and video-stimulated recall. Papers 1 and 2 were conducted through document analysis. Paper 3 consists of document analysis and semi-structured interviews, and Paper 4 involved semi-structured interviews with video-stimulated recall. A content analysis was conducted to analyze the data in the different materials, which including coding and categorizing in different ways depending on the paper and focusing research question. As a methodological approach, the experiences of teachers' interpretations and stakeholders' intentions has been the unit of study, and the researcher's interpretation of analyzed documents.

Concluding results

The results show that learning progression in school geography can be seen both in spiral structure and divided depending on different content. Geographical knowledge in terms of thinking geographically, geographical advantage, and spatial/geospatial thinking are implicit in the subject-specific abilities, leaving the teaching to make choices that could include these aspects of geographical knowledge. The making of the

syllabus of geography as a policy document can be divided into a six-step process. These six steps are:

Step 1: The National Agency for Education consults with subject experts, experts in subject didactics and organizations.

Step 2: SNAE appoint a person responsible for the work and a work team with a chair. The writing process begins.

Step 3: SNAE designates and establishes a reference group to comment on the work teams' proposal. The National Agency for Education also has people who provide feedback.

Step 4: SNAE designate schools that will look and test the material.

Step 5: The National Agency for Education examines the proposal before sending it to the Ministry of Education.

Step 6: The Ministry of Education makes its own changes.

These six steps have been part of the method of making conflict zones visible. Further, conflict zones have been identified and analyzed by examining teachers' experiences of their intentions in the process of shaping the curriculum in geography (See Figure 4).The stakeholders recontextualize geographical knowledge in these six steps and five different zones of conflicts are identified where this recontextualization can be analyzed:

- Politics and science
- Teacher experience and subject expertise
- Diverse subject expertise and subject didactic expertise
- Communication and steering
- Subject interests and general interests

In these zones of conflicts, geographical knowledge is recontextualized through different stakeholders' intentions. Selective traditions in geography and different aspects of geographical knowledge can be seen in the recontextualization of geographical knowledge through the zones of conflicts. The Ministry of Education seemed to be proclaiming selective traditions in geography. The work team with subject specialists, subject-didactic specialists, and teachers were holding a mixed position of different aspect of academic geographical knowledge and experience. Also, SNAE set the subject-specific knowledge in geography in relation to more general aims of making a curriculum for all subjects, which should be clearer than the previous curriculum.

The experiencers of the stakeholders in relation to geographical knowledge can be further discussed in a field of tension[10], see Figure 5.

This field of tension shows the different aspects of the stakeholders' intentions with geographical knowledge in school. Politicians and subject-didactic expertise and subject expertise has clear tension between them representing different traditions of geography; however, the tension between geography as a social science subject and science subjects is clearer between different subject experts.

The teachers' experience of the subject-specific abilities is diverse in the interrelation between subject-specific generic. Both the subject-specific experiences and the generic ones can be divided into different interpretations of subject-specific abilities; hence, the subject-specific can be different experiences and so can the generic experiences, see Table 3.

Subject-specific experiences as places, scales, and connections in geography can be explicitly related to thinking geographically, geographical advantage, and geospatial thinking. The spatial frame of reference can be related to spatial thinking and world knowledge. Methods and material are a further experience that the teacher connects as subject-specific. Generic experiences can be connected to overall aims in school, subject-integrated goals, and teachers' own interests.

For teachers to work professionally with recontextualizations of knowledge (Bladh, Stolare and Kristiansson 2018), ideas about linking powerful knowledge with didactic and knowledge practices could serve as a kind of compass. I suggest that teachers and researchers can collaborate to create a knowledge reservoir for the teachers to use in their profession. This collaboration would fit in the collective space of agency and the knowledge reservoir can be used in the individual and interactive spaces of agency.

The teacher has space to act and make geography in relation to the syllabus, but is also affected by in-built problems in the syllabus and the context of a result-oriented school. To help the teachers navigate in relation to the policy documents and steering of school, a professional compass is presented. This professional compass consists of and can help the teachers in the following ways:

- Teachers have the possibility to act in different spaces of agency where they can make choices that involve geographical knowledge. These spaces in lgr11 are: the collective space, the individual space, and the interaction space between teachers and students. A professional teacher makes reflected choices in these spaces that are underpinned by both disciplinary knowledge and

[10] The field of tension is taken from Bladh (2014).

teachers' experience – connecting geographical knowledge to students by relating to their experiences.

- Awareness that teaching is also about making judgments and values. Teachers identities are a factor that also have a role in teaching. A professional teacher reflects on them in, for example, subject identity, and makes choices in their teaching that are not only based on their personal experiences, but also on choices that can facilitate the relation between and disciplinary knowledge and school subjects.
- Both collectively and for individual professional development, teachers should discuss the recontextualisation of geographical knowledge with each other and in contact with researcher. In that way they can enlighten others and be enlightened about different aspects of recontextualization of geographical knowledge.

Further research

This research contributes to an insight of school geography in compulsory school, which has only been studied to a limited degree previously. The focus in this study is teachers, documents, and stakeholders, which leaves the students' interpretations and experiences open for new research. Future studies could investigate how and what geographical knowledge the students actually learn in geography. The recontextualization of knowledge between the programmatic and classroom levels can also be further researched, with synergies in relating didaktik with the curriculum theory.

Another valuable further study would be about helping teachers to recontextualize geographical knowledge, to be a link between disciplinary knowledge and school geography. Creating a conceptual didactical model together with teacher based on organizing concepts in relation to geographical knowledge could be a way to go forward. This kind of model can be used as a tool that can complete a professional compass for teachers in geography.

SAMMANFATTNING

Denna avhandling är en läroplansstudie inom geografiämnets didaktik. Vad som analyseras är hur geografisk kunskap rekontextualiseras i skapandet av en läroplan, såsom i en kursplan i geografi. Av intresse är på det sättet både att förstå läroplanen som policydokument, hur den blivit tillverkad samt hur den i praktiken utförs i klassrummet av lärare. Efter reformen av läroplanen för grundskolan i Sverige 2011 introducerades ämnesspecifika förmågor som mål för ämnet. Begreppet ämnesspecifika förmågor är studiens huvudfokus och kan ses som en röd tråd genom hela avhandlingen. Forskningsfrågorna fokuserar på geografisk kunskap hos lärare, olika aktörers erfarenheter och vad som uttrycks i olika dokument.

Avhandlingen innehåller också en översikt över ämnesdidaktisk forskning i geografi i Sverige, en internationell utblick och en historisk bakgrund av akademisk- och skolgeografi i Sverige. Forskningen fyller en forskningslucka i studiet av läroplanens reformer och tolkningar av den i termer av programmatisk nivå, klassrumsnivå samt rekontextualisering på dessa nivåer och mellan dem. Ytterligare ett hål som fylls är forskning om skolgeografi i grundskolan, vilken har varit mycket begränsad i ett svenskt sammanhang.

Teori och metoder

Läroplansteori och teorier om geografisk kunskap och utbildning ligger till grund för analysen. I läroplansteorin beaktas både den anglosaxiska traditionen för studier av läroplanen och den nordisk-tyska didaktiktraditionen, för att kunna hitta synergier som kan användas i avhandlingen. Nivåer (Doyle 1992) och arenor (Wahlström 2014) i läroplanen används som nyckelbegrepp, liksom *pedagogical device* och rekontextualisering (Bernstein 1990). Processerna för att skapa en läroplan kan placeras på olika arenor eller nivåer, och forskningen i avhandlingen rör styrning och

klassrumsarena, eller institutionell nivå (programmatisk) och klassrumsnivå. Bernsteins begrepp *pedagogical device* och läroplansteori används för att analysera rekontextualisering och reproduktion av den geografiska kunskapen. I förhållande till den professionella läraren analyseras detta vidare genom utrymmen för aktörskap (Alvunger 2018) och modellen för en professionell kompass (Brooks 2016).

Teorier om geografisk kunskap, som *thinking geographically, geographical advantage, geocapabilities* och *geospatial thinking*, används för att analysera den geografiska kunskapen i en miljö för skolgeografi i Sverige, med fokus på ämnesspecifika förmågor. Dessutom beaktas Youngs (2008) teori om *powerful knowledge*, Biestas (2010) tankar om *good education* och *subjectification* och Carlgrens (2015) idéer om kunskapspraktiker.

Metoderna för att genomföra forskningen är kvalitativa och består av dokumentanalys, semi-strukturerade intervjuer och *video-stimulated recall*. Artikel 1 och artikel 2 genomfördes med hjälp av dokumentanalys. I artikel 3 användes dokumentanalys och semi-strukturerade intervjuer och i artikel 4 semi-strukturerade intervjuer med *video-stimulated recall*. För att analysera det insamlade materialet användes innehållsanalys, vilket innebär att kodning och kategorisering genomfördes på olika sätt beroende på artikel och på fokusering av forskningsfråga. Som metodologiskt tillvägagångssätt har erfarenheterna av lärarnas tolkningar och aktörers avsikter varit studieenheten, samt forskarens tolkning av analyserade dokument.

Geografiska kunskaper i läroplanen – från policy till klassrummet

Tre aspekter av läroplanen kan sägas vara i fokus: läroplanen som policydokument, att skapa en kursplan samt lärarens användning av kursplanen i klassrummet. Dessa tre delar presenteras nedan i förhållande till mina frågeställningar om geografisk kunskap i skolan.

Läroplanen som policydokument

I läroplan som policydokument har kunskaper i geografi analyserats i relation till progression och i relation till vilken till geografisk kunskap det är. Resultaten visar att lärandeprogression inom skolgeografi kan ses som en blandning av spiralstruktur, där innehåll återkommer flera gånger, och att innehållet delas upp beroende på komplexitet i olika innehåll. Det innebär till exempel att samma innehåll kan förekomma flera

gånger på olika nivåer med olika komplexitet, men också att innehåll kan delas upp i mer mindre komplext. Ett exempel är att det att det i geografiämnet utgås ifrån att världen och globala aspekter kommer senare i skolåren än det lokala som kommer tidigare.

När det gäller geografisk kunskap i termer av *thinking geographically*, *geographical advantage* och *spatial/geospatialt thinking* är det implicit i de ämnesspecifika förmågorna. Det innebär att geografiska kunskapsaspekter kopplat till dessa koncept finns i de ämnesspecifika förmågorna men inte klart utsagda, vilket kan få konsekvenser för undervisningen. Läraren gör val som mer eller mindre kan inkludera dessa aspekter av geografisk kunskap.

Att skapa en kursplan

I processen med att skap kursplanen i geografi innefattas flera olika aktörer. Upprättandet av kursplanen för geografi som policydokument kan delas in i en process med sex steg. Dessa sex steg är:

Steg 1: Nationella utbildningsmyndigheten konsulterar ämnesexperter, experter inom ämnesdidaktik och organisationer.

Steg 2: Skolverket utser en ansvarig person för arbetet och ett arbetslag med en ordförande. Skrivprocessen startar.

Steg 3: Skolverket utser en referensgrupp för att kommentera arbetslagens förslag. Skolverket har också personal som ger feedback.

Steg 4: Skolverket utser försöksskolor som ska undersöka och testa materialet.

Steg 5: Skolverket undersöker förslaget innan det skickas till utbildningsministeriet.

Steg 6: Utbildningsdepartementet gör sina egna förändringar.

I avhandlingen används de sex stegen för att synliggöra de konfliktzoner som förekommit i skapandet av kursplanen i geografi. Konfliktzonerna har identifierats genom en analys lärarnas beskrivningar av sina erfarenheter av att utforma kursplanen i geografi. Konfliktzoner har kunnat identifieras genom en analys av lärarnas erfarenheter av sina intentioner i processen av att forma kursplanen i geografi. De identifierade konfliktzonerna är:

- Politik och vetenskap, det vill säga när politiska beslut möter vetenskapliga förslag på hur läroplanen ska utformas och vad den ska innehålla.

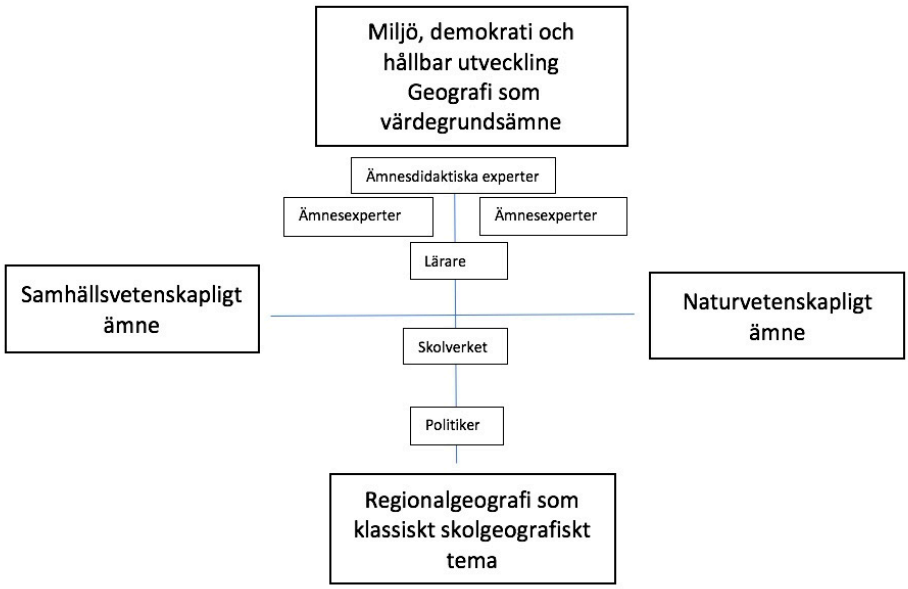
- Lärares erfarenheter och ämnesexperter, vilket kan förklaras som när lärare och ämnesexperter möter varandra för att välja ut hur kursplanen ska utformas och vad den ska innehålla.
- Olika ämneskunskaper och ämnesdidaktiska kunskaper, den här zonen kan kopplas till mötet mellan ämnesexperter i olika fält.
- Kommunikation och styrning, består av den information och den kommunikation som skett mellan olika aktörer i skapandeprocessen av kursplanen, till exempel mellan Skolverket och den grupp bestående av lärare, ämnesexperter och ämnesdidaktiska experter som skrev förslaget till kursplanen.
- Ämnesintressen och allmänna intressen, är mötet mellan aktörer som företräder ett ämnesintresse i geografi och de aktörer som också företräder andra syften, som till exempel Skolverkets uppdrag att göra hela läroplanen tydligare och att fördela ämnesinnehåll mellan olika ämnen.

I skapandet av kursplanen ingår således olika aktörer i form av lärare, ledare på Skolverket, referensgrupper och politiker. Dessa aktörer väljer ut och företräder olika aspekter av geografisk kunskap i olika delar av skapandeprocessen av kursplanen, därmed också i ovanstående konfliktzoner. På det sättet rekontextualiseras geografisk kunskap i skapandeprocessen och konfliktzonerna genom olika aktörers intentioner. Följaktligen kan selektiva traditioner inom geografi och olika aspekter av geografisk kunskap ses i rekontextualiseringen av geografisk kunskap genom konfliktzonerna.

Utbildningsdepartementet värnar om selektiva traditioner inom geografi, vilket kan förklaras som invanda förhållningssätt till geografi. Arbetsgruppen som skrev utkastet till kursplanen bestod av ämnesspecialister, ämnesdidaktiska specialister och lärare. De företrädde olika aspekter av akademisk geografisk kunskap och erfarenheter. Aktörer på Skolverket förhöll sig mer generellt och ämnesintegrerat till ämnesspecifika kunskaper i geografi, vilket kan relateras till ett allmänt mål att skapa en betydligt tydligare läroplan än den föregående.

Aktörernas erfarenheter i förhållande till geografisk kunskap kan diskuteras vidare i ett spänningsfält (se figur 6).[11] Detta spänningsfält visar dels olika traditioner i geografiämnet, dels ämnets ämnesintegrerade karaktär.

[11] Spänningsfältet är en omarbetning av Bladh (2014)



Figur 6 Aktörer i skapandet av kursplanen i ett spänningsfält

I spänningsfältet visas skillnader mellan olika aktörers avsikter med geografisk kunskap i skolan. Det finns en tydlig spänning mellan olika geografitraditioner. Politikers intentioner med geografiska kunskaper skiljer sig från den syn som företräds av ämnesdidaktisk och ämnesmässig expertis. Spänningen är dock också tydlig mellan ämnesexperters syn på huruvida ämnet ska betraktas som samhällsvetenskapligt eller naturvetenskapligt, därav två rutor med ämnesexperter i figur 6.

Kursplanen i klassrummet

Lärarnas erfarenheter av de ämnesspecifika förmågorna kan vara både ämnesspecifika och generiska, samt en blandning av dem båda. Lärarnas ämnesspecifika och generiska erfarenheter kan delas in i olika tolkningar av ämnesspecifika förmågor, som sedan kommer till uttryck i undervisningen i klassrummet.

Tabell 6 Lärarnas erfarenhet av tolkningar av ämnesspecifika förmågor

Ämnesspecifika erfarenhet			**Generiska erfarenheter**			
Plats	Skala	Spatial referensram	Hantera information/källkritik	Ta någon annans perspektiv	Samband – generisk	Aktion
Samband – geografi	Material och metod		Fritt tänkande/ kreativitet	Demokrati/deltagande	Språk och begrepp	

Ämnesspecifika erfarenheter av förmågor som plats, skala och samband inom geografi kan vara relaterade till *thinking geographically, geographical advantage* och *geospatial thinking*. Spatial referensram kan relateras till *geospatial thinking* och *world knowledge*. Lärarna rekontexualiserar även geografisk kunskap i sin undervisning genom att fokusera på metoder och material. erfarenheter av ämnesspecifika förmågor De generiska erfarenheterna kan kopplas till övergripande mål i skolan, ämnesintegrerade mål och lärarnas eget intresse.

Modell för den professionella läraren

Läraren har utrymme att agera och välja geografiska kunskaper i förhållande till kursplanen, men påverkas av inbyggda problem i kursplanen och det faktum att skolan är så resultatorienterad. För att hjälpa lärarna att navigera i förhållande till policydokumenten och styrningen av skolan har vägledande punkter i en professionell kompass presenterats i avhandlingen. Denna professionella kompass kan hjälpa lärarna på olika sätt med beslut de behöver ta behöver ta i sin undervisning:

- Lärarna har möjlighet att agera genom att göra val som involverar geografisk kunskap. Dessa utrymmen i lgr11 är: det kollektiva rummet, det individuella rummet och interaktionsutrymmet mellan lärare och elever. En professionell lärare gör reflekterade val i dessa utrymmen som stöds av både disciplinära kunskaper och erfarenhet. Den professionella läraren kan även koppla den geografiska kunskapen till elevernas erfarenheter.

- Medvetenhet om att undervisningen, förutom kunskapsförmedling, också handlar om handlar om att göra bedömningar och värderingar. Lärarens identitet är en faktor som spelar roll i undervisningen. En professionell lärare reflekterar över sin identitet, exempelvis ämnesidentitet, och gör val i sin undervisning som inte bara baseras på personliga erfarenheter utan också på vad som kan underlätta förhållandet mellan disciplinära kunskaper och skolämnen.
- Lärare kan diskutera rekontextualisering av geografisk kunskap med varandra, som ett led i individuell professionell utveckling. Diskussioner bör också föras mellan lärare och forskare. På detta sätt kan de utbyta erfarenheter och kunskap om rekontextualisering av geografisk kunskap.

Vidare forskning

Denna avhandling kan ge en inblick i skolgeografi i grundskolan, något som endast har studerats i begränsad grad tidigare. Fokus i denna studie är lärare, policydokument och aktörer, vilket lämnar elevernas tolkningar och erfarenheter öppna för ny forskning. Framtida studier kan undersöka hur och vilken geografisk kunskap eleverna faktiskt tar till sig i geografi.

Rekontextualiseringen av kunskap mellan programmatisk nivå och klassrumsnivå kan också undersökas vidare, med synergier för att koppla didaktik till *curriculum theory*. I relation till detta kan forskningen hjälpa lärare att rekontextualisera geografisk kunskap, att vara en länk mellan disciplinär kunskap och skolgeografi. Att skapa en konceptuell didaktisk modell tillsammans med läraren baserat på att organisera begrepp i relation till geografisk kunskap kan vara ett sätt att gå vidare. Denna typ av modell kan användas som ett verktyg som kan komplettera en professionell kompass för lärare i geografi.

References

Alexandersson, M. (1994). *Metod och medvetande*. (Diss.) Göteborg: Universitet Göteborg.

Alm Fjellborg, A. & Molin, L. (2018). Vilka typer av uppgifter gynnar elever som följer kursplanen i svenska som andraspråk? En undersökning med data från de nationella proven i geografi. *Acta Didactica*, Norge. *12*(4).

Alvesson, M., & Sköldberg, K. (2017). *Tolkning och reflektion: vetenskapsfilosofi och kvalitativ metod* (Third edition). Lund: Studentlitteratur.

Alvunger, D. (2018). Teachers' curriculum agency in teaching a standards-based curriculum. *Curriculum Journal*, *29*(4), 479–498. https://doi-org.proxy.mau.se/10.1080/09585176.2018.1486721

Anderberg, S. (1986). *Läroplan och omvärldsbild: didaktiska aspekter på undervisningen om Västeuropa på högstadiet*. Lund University.

Andersland, S (2011). *GIS i geografifaget på ungdomstrinnet: fagdidaktiska perspektiv på att lære om og med GIS*. NTNU: Trondheim.

Apple, M.W. (2018). *Ideology and curriculum*. (Fourth edition.) New York: Routledge.

Applis, S. (2016). Geography Teachers' Concepts of Working with Thinking through Geography Strategies – Results of an Empirical Reconstructive Study. *International Research in Geographical and Environmental Education*, *25*(3), 195–210.

Arensmeier, C. & Lennqvist Lindén, A-S. (2017). Bemyndigande eller granskning nationella prov som styrinstrument. *Utbildning och Demokrati*, *26*(2), 49–74.

Arrhenius, M., Lundholm, C., & Bladh, G. (2020). Swedish 12–13-year-old students' conceptions of the causes and processes forming eskers and erratics. *Journal of Geoscience Education*, DOI: 10.1080/10899995.2020.1820838

Arrhenius, M. (2013) *Datorbaserade animationer i geografiundervisningen: en studie om gymnasieelevers lärande i mötet med datorbaserade animationer om bergartscykeln*. Uppsala universitet, Licentiatavhandling. Uppsala.

Bagoly-Simó, P. (2014). Tracing sustainability: Education for Sustainable Development in the lower secondary geography curricula of Germany, Romania, and Mexico. *International Research in Geographical & Environmental Education*, *23*(2), 126–141. https://doi.org/10.1080/10382046.2014.908525

Behnke, Y. (2016). How textbook design may influence learning with geography textbooks. *Nordidactica*, *2016*(1), 38–62.

Béneker, T., & van der Vaart, R. (2020). The knowledge curve: combining types of knowledges leads to powerful thinking. *International Research in Geographical & Environmental Education*, *29*(3), 221–231. https://doi.org/10.1080/10382046.2020.1749755

Bernstein, B. (1990). *Class, codes and control, volume IV: The structuring of pedagogic discourse*. London: Routledge.

Bernstein, B. (1999). Vertical and Horizontal Discourse: An Essay. *British Journal of Sociology of Education*, *20*(2), 157.

Bernstein, B. (2000). Pedagogy, symbolic control and identity. In *Theory, research, critique, Vol. V.* Lanham, MD: Rowman and Littlefield.

Biesta, G. (2010). *Good education in an age of measurement: ethics, politics, democracy.* Boulder, CO: Paradigm Publishers.

Biggs, J., & Collis, K. (1982). *Evaluating the Quality of Learning: The SOLO Taxonomy.* New York: Academic Press.

Binder M. D., Hirokawa N., & Windhorst U. (Eds) (2009). Spatial Frame of Reference. In *Encyclopedia of Neuroscience.* Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-540-29678-2_5544

Bladh, G., & Molin, L. (2012). Skolämnet geografi och geografididaktisk forskning i Sverige och Norden. In N. Gericke & B. Schullerqvist (Eds.): *Ämnesdidaktisk komparation – länder, ämnen, teorier, metoder och resultat. Ett urval av artiklar presenterade vid den tredje nordiska ämnesdidaktiska konferensen (NOFA3) vid Karlstads universitet, 2011* (pp. 59–74). Karlstad University Press.

Bladh, G. (2014). Geografilärare och geografiundervisning i den svenska grundskolan: Några delresultat av en enkätstudie. *Geografiska Notiser*, *72*(4), 158–168.

Bladh, G., Stolare, M., & Kristiansson, M. (2018). Curriculum principles, didactic practice and social issues: Thinking through teachers' knowledge practices in collaborative work. *London Review of Education*, *16*(3), 398–413. https://doi.org/10.18546/LRE.16.3.04

Bladh, G. (2020a). Geografi som vetenskap och som skolämne. In L. Dessen Jankell & D. Örbring (Eds.). *Geografididaktik för lärare 4-9*. Malmö: Gleerups.

Bladh, G. (2020b). GeoCapabilities, Didaktical analysis and curriculum thinking – furthering the dialogue between Didaktik and curriculum. *International Research in Geographical and Environmental Education*, DOI: 10.1080/10382046.2020.1749766

Bladh, G., & Örbring, D. (2016). GeoCapabilities – en plattform för ämnes- och professionell utveckling i skolgeografin. *Geografiska Notiser*, *74*(4), 155–160.

Blom Mondlane, U. & Jansund, B. (2003). *Geografi – didaktik – praktik: interaktiva studier av förloppslandskapet.* Diss. av båda förf. Göteborg: Univ, 2003. Göteborg.

Bonnett, A. (2008). *What is Geography?* London: Sage.

Broady, D. (1981). *Den dolda läroplanen: KRUT-artiklar 1977–80* (The hidden curriculum: KRUT articles 1977–80). 1st ed. Stockholm: Symposium.

Brooks, C. (2006). Geography teachers and making the school geography curriculum. *Geography*, *91* (1), 79–83.

Brooks, C. (2016a). *Teacher subject identity in professional practice: teaching with a professional compass*. London: Routledge, Taylor & Francis Group.

Brooks, C. (2016b). Geography teachers' stories of sustainability: an introduction to narrative research. *International Research in Geographical & Environmental Education,* 25(2), 97–104. https://doi.org/10.1080/10382046.2016.1161904

Brooks, C., Butt, G. & Fargher, M. (Eds). (2017). *The power of geographical thinking, international perspectives on geographical education.* New York: Springer.

Bruner, J. S. (1960). *The process of education*. Cambridge, Mass.: Harvard University Press.

Bustin, R. (2019). The 'Capabilities Approach' to Geography Education. In Bustin, R. *Geography Education's Potential and the Capability Approach: GeoCapabilities and Schools* (s. 99–130). Springer Nature Switzerland AG. Cham

Butt, G., & Lambert, D. (2014). International perspectives on the future of geography education: an analysis of national curricula and standards. *International Research in Geographical & Environmental Education*, *23*(1), 1–12. https://doi.org/10.1080/10382046.2013.858402

Butt, Graham (2000). *Continuum guide to geography education*. New York: Continuum

Castree, N. (2005). *Nature*, Routledge, Oxon.

Castree, N, Demeritt, D., & Liverman, D. (2009). Introduction: Making Sense of Environmental Geography. In N. Castree, D. Demeritt, D. Liverman, & B. Rhoads (Eds). *A companion to environmental geography*, Wiley-Blackwell, UK.

Carlgren, I. (2009). Kunskapssynen i 90-talets läroplanskonstruktion. In I. Carlgren, E. Forsberg, & V. Lindberg (Eds.), *Perspektiv på den svenska skolans kunskapsdiskussion* (pp. 16–38), Stockholm, Stockholms universitets förlag.

Carlgren, I. (2015). *Kunskapskulturer och undervisningspraktiker*. Göteborg: Daidalos.

Carlgren, I. (2020). Powerful knowns and powerful knowings. *Journal of Curriculum Studies*, *52*(3), 323–336, DOI: 10.1080/00220272.2020.1717634

Casinader, N., Mitchell, D., & Hammond, L. (2020). Challenging the teaching of geographies of exclusion – the potential of geocapabilities for a transcultural approach in Australian and English schools. *International Research in Geographical & Environmental Education*, *29*(4), 316–331. https://doi.org/10.1080/10382046.2019.1675991

Chang, C.-H., & Kidman, G. (2020). Dawn of a new decade – what can geographical and environmental education offer for the 2020s. *International Research in Geographical & Environmental Education*, *29*(1), 1.

Chang, C.-H., Chatterjea, K., Goh, D. H.-L., Theng, Y. L., Lim, E.-P., Sun, A., Razikin, K., Kim, T. N. Q., & Nguyen, Q. M. (2012). Lessons from Learner Experiences in a Field-Based Inquiry in Geography Using Mobile Devices. *International Research in Geographical and Environmental Education*, *21*(1), 41–58.

Cohen, L., Manion, L. & Morrison, K. (2011). *Research methods in education. 7th ed*. Milton Park, Abingdon, Oxon, [England]: Routledge.

Cresswell, T. (2013). *Geographic thought: a critical introduction*. Chichester: Wiley-Blackwell.

Curtis, M. D. (2019). Professional Technologies in Schools: The Role of Pedagogical Knowledge in Teaching with Geospatial Technologies. *Journal of Geography*, *118*(3), 130–142.

Demirci, A., Miguel González, R., & Bednarz, S. W. (Eds.) (2018). *Geography Education for Global Understanding.* Switzerland: Springer International Publishing.

Deng, Z. (2018a). Pedagogical content knowledge reconceived: Bringing curriculum thinking into the conversation on teachers' content knowledge. *Teaching and Teacher Education*, *72*, 155–164.

Deng, Z. (2018b). Contemporary curriculum theorizing: Crisis and resolution. *Journal of Curriculum Studies*, 50(6), 691–710.

Deng, Z & Luke, A. (2008). Subject Matter: Defining and Theorizing School Subjects. In M. F. Connelly, F. H. Ming, & J. Phillion (Eds.). *The SAGE handbook of curriculum and instruction (Online publication).* Los Angeles: Sage Publications.

DeSeCo Background paper (2001). *Definition and Selection of Competencies: Theoretical and Conceptual Foundations (DeSeCo).* Revised 2001. OECD.

Doyle, W. (1992). Curriculum and pedagogy. In P. W. Jackson (Ed.). *Handbook on research in Education. A project of American Educational Research Association* (486–516). New York: Macmillan.

Doyle, W. (2017). The Didaktik/Curriculum dialogue: What did we learn? In M. Uljens & R. M. Ylimaki (Eds.) (2017). *Bridging educational leadership, curriculum theory and didaktik: non-affirmative theory of education.* Cham: Springer Open.

Dewey, J. & Bentley, A. (1949/1989). *Knowing and the Known. The later works 1949–1952*, 16, pp. 1–280. Southern Illinois University Press.

Ehrlén, K. (2007). *Conceptions and artefacts: children's understanding of the earth in the presence of visual representations*. Department of Education, Stockholm University.

Einarsson, E., & Lunds Universitet, Geologiska institutionen (2018). *Palaeoenvironments, palaecology and palaeobiogeography of Late Cretaceous (Campanian) faunas from the Kristianstad Basin, southern Sweden, with applications for science education*. Lithosphere and Biosphere science, Department of Geology, Lund University.

Englund, T. (1986). *Curriculum as a political problem: changing educational conceptions, with special reference to citizenship education.* Diss. Uppsala: Lund University.

Englund, T. (2005). *Läroplanens och skolkunskapens politiska dimension.* Göteborg: Daidalos.

Eurydice (2002). *Key Competencies. A developing concept in general compulsory education.* Brussels: Eurydice European Unit.

EUT L394/2006: *Nyckelkompetenser för livslångt lärande* (Key competences for lifelong learning).

Ezzy, D. (2002). *Qualitative analysis: practice and innovation*. London: Routledge.

Faye, J. (2012). *After postmodernism: a naturalistic reconstruction of the humanities.* Basingstoke: Palgrave Macmillan.

Fargher, M. (2018). WebGIS for Geography Education: Towards a GeoCapabilities Approach. *ISPRS International Journal of Geo-Information*, *7*(3), 111. https://doi.org/10.3390/ijgi7030111

Favier, T. T. & Van der Schee, J. A. (2012). Exploring the characteristics of an optimal design for inquiry-based geography education with Geographic Information Systems. *Computers and Education*, *58*, 666–677.

Forsberg, E. (2009). Kompetensrelaterade kunskapsdiskurser – i inter/nationell policy om utbildning. In I. Carlgren, E. Forsberg, and V. Lindberg (Eds.), *Perspektiv på den svenska skolans kunskapsdiskussion,* 16–38, Stockholm, Stockholms universitets förlag.

Geografilärarnas Riksförening (1964). Angående 1960 års gymnasieutrednings betänkande IV och V. *Geografiska Notiser*, *1964*(1), s 3–14.

Grahn, Andreas (2011). *Fakta, normativitet eller pluralism.* Kulturgeografiska institutionen. Forskarskolan i Geografi. Uppsala Universitet.

Gerber, R. (Ed.) (2003). *International handbook on Geographical Education.* The GeoJournal library vol 73. Dordrecht: Kluwer.

Graves, N. (ed) (1982) *New UNESCO Source Book for Geography Teaching*. Harlow: Longman.

Goldman, R. (Ed.) (2007). *Video research in the learning sciences.* Mahwah, NJ: Lawrence Erlbaum Associates.

Gottfridsson, H. O. & Bladh, G. (2012). Hur ser geografiundervisningen i den svenska grundskolan ut idag? *Geografiska notiser*, *2012*(4), pp.162–163.

Gottfridsson, H. O. & Christenson, N. (2020). Perspektiv på undervisning i geografi – i den svenska grundskolan. *Geografiska Notiser, 2020*(3).

Gottfridsson, H. O., Christenson, N., & Bladh, G. (2020). Geografiutbildning och geografididaktisk forskning vid Karlstad universitet. *Geografiska Notiser,* 2020: 3.

Gustafsson, B., Petterson, B., & Hermerén, G. (2011). *God forskningssed*. Stockholm: Vetenskapsrådet.

Gustafsson, B., Hermeren, G. & Pettersson, B. (2017). *God forskningssed*. Stockholm: Vetenskapsrådet.

Gryl, I., & Jekel, T. (2012). Re-centring Geoinformation in Secondary Education: Toward a Spatial Citizenship Approach. *Cartographica, 47*(1), 18–28. https://doi.org/10.3138/carto.47.1.18

Hanson, S. (2004). Who are 'we'? An important question for geography's future. *Annals of the Association of American Geographers*, *715*.

Harring, N., Torbjörnsson, T., & Lundholm, C. (2018). Solving Environmental Problems Together?: The Roles of Value Orientations and Trust in the State in Environmental Policy Support among Swedish Undergraduate Students. *Education Sciences*, *8*(3). https://doi.org/10.3390/educsci8030124

Harvey, D. (1989) *The Condition of Postmodernity*. Oxford: Basil Blackwell.

Harvey, D. (2016). *The ways of the world*, Oxford University Press, New York.

Haubrich, H., Reinfried, S., & Schleicher, Y. (2007). Lucerne Declaration on geographical education for sustainable development. In S. Reinfried, Y. Schleicher, & A. Rempfler (Eds.), *Geographical views on education for sustainable development: Proceedings* (pp. 243–250). Weingarten: HGD.

Hennerdal, P. (2015a). *Education through Maps: The Challenges of Knowing and Understanding the World.* PhD thesis, Department of Human Geography, Stockholm University.

Hennerdal, P. (2015b). Educational ideas in geography education in Sweden during the nineteenth and early twentieth centuries: the relationship between maps and texts. *International Research in Geographical and Environmental Education*, *24*(3), 258–272. https://doi.org/10.1080/10382046.2015.1034460

Hennerdal, P. (2015c). Beyond the Periphery: child and Adult Understanding of World Map Continuity. *Annals of the Association of American Geographers*, *105*(4), 773–790. https://doi.org/10.1080/00045608.2015.1022091

Hennerdal, P. (2016). Changes in place location knowledge: a follow-up study in Arvika, Sweden, 1968 and 2013. *International Research in Geographical and Environmental Education*, 25(4), 309–327. https://doi.org/10.1080/10382046.2016.1207991

Holloway, S. L. (2014). Changing children's geographies. *Children's Geographies*, 12(4), 377–392. https://doi.org/10.1080/14733285.2014.930414

Holmén, H., & Anderberg, S. (1993). *Geografiämnet i gymnasiet – kunskapssyn, ämnesuppfattning, arbetsformer.* Utvärderingsenheten, Lunds Universitet no. 93, 191, Lund.

Hudson, B. (2016). Didactics. In D. Wyse, L. Hayward & J. Pandya (Eds.), *The SAGE handbook of curriculum, pedagogy and assessment* (pp. 107–124). London: Sage.

Johnsson, Gunnar (1955). Skolgeografins mål och innehåll. En kritisk analys. *Geografiska Notiser*, *1955*(4), s. 23–34.

International Charter on Geography Education (1992). The Commission on Geography Education of the International Geographical Union.

International Charter on Geography Education (2016). The Commission on Geography Education of the International Geographical Union.

Jackson, P. (2006). *Thinking geographically*. Geography, *91*(3), 199–204.

Jackson, P. W. (1968). *Life in Classrooms*. New York: Holt. Rinehart and Winston.

Johansson, L.-G., Masterton, G., Remes, P., & Ekenberg, T. (2014). *Kunskapsteori: en introduktion till vetande, berättigande och sanning* (First edition). Studentlitteratur.

Johnston, R. (2015). *Geography and geographers – Anglo-American human geography since 1945.* Hodder Education.

Jones, M. & Lambert, D. (ed.) (2018). *Debates in geography education. (Second edition).* London: Routledge, Taylor & Francis Group.

Kansanen, P. (2009) Subject-matter didactics as a central knowledge base for teachers, or should it be called pedagogical content knowledge? *Pedagogy, Culture & Society*, *17*(2), 29–39,

Kerski, J. J. (2015). Geo-awareness, Geo-enablement, Geotechnologies, Citizen Science, and Storytelling: Geography on the World Stage. *Geography Compass*, *9*(1), 14–26.

Kim, H., Yamamoto, R., Ito, N., & Shimura, T. (2020). Development of the GeoCapabilities Project in Japan: Furthering International Debate on the GeoCapabilities Approach. *International Research in Geographical and Environmental Education*, 29(3), 244–259.

Klafki, W. (1985/2001) *Dannelseteori och Didaktik – Nye studier*. Klim: Aarhus.

Klafki, W. (2000) Didaktik analysis as the core of preparation of instruction. In I. Westbury, S. Hopmann, & K. Riquarts (Eds) *Teaching as a Reflective Practice: The German Didaktik tradition* (pp. 139–160). London: Routledge.

Kramming, K. (2017). *Miljökollaps eller hållbar framtid?: hur gymnasieungdomar uttrycker sig om miljöfrågor.* Diss. Uppsala: Uppsala Universitet.

Kvale, S., & Brinkmann, S. (2009). *Den kvalitativa forskningsintervjun* (Second edition). Lund: Studentlitteratur.

Kwan, T., & So, M. (2008). Environmental learning using a problem-based approach in the field: A case study of Hong Kong school. *International Research in Geographical and Environmental Education, 17*(2), 93–113.

Lambert, D., Solem, M., & Tani, S. (2015). Achieving human potential through geography education: A Capabilities Approach to curriculum making in schools. *Annals of the Association of American Geographers*, *105*(4), 723–735.

Lambert, D. (2015). Curriculum thinking, 'capabilities' and the place of geographical knowledge in schools. *Journal of Educational Research on Social Studies*, *81*, 1–11.

Lambert, D. (2019a). Geography, Capabilities and the Educated Person. In E. E. Shin & S.W. Bednarz (Eds.), *Spatial citizenship education*. New York, NY: Routledge, 1–9.

Lambert, D. (2019b). On the knotty question of 'recontextualising' knowledge: Editorial. *International Research in Geographical and Environmental Education*, *28*(4), 257–261.

Lambert, D. & Jones, M. (Eds.) (2013). *Debates in Geography Education*. Abingdon, Oxon: Routledge.

Lambert, D. & Machon, P. (Eds.) (2001). *Citizenship through secondary geography*. London: RoutledgeFalmer.

Lane, R., & Bourke, T. (2019). Assessment in Geography Education: A Systematic Review. *International Research in Geographical and Environmental Education*, *28*(1), 22–36.

Lidstone, J. & Williams, M. (Eds.) (2008). Geographical Education in a changing world. *The GeoJournal Library*, Vol. 85. Dordrecht: Springer.

Lindensjö, B. & Lundgren, U.P. (2014). *Utbildningsreformer och politisk styrning*. (Second edition). Stockholm: Liber.

Leat, D. (1998). *Thinking through Geography*. Cambridge: Chris Kington Publishing.

Lei, P. L., Kao, G. Y. M., Lin, S. S., & Sun, C. T. (2009). Impacts of geographical knowledge, spatial ability and environmental cognition on image searches supported by GIS software. *Computers in Human Behavior*, *25*, 1270–1279.

Lilliedahl, J. (2015). The recontextualisation of knowledge: towards a social realist approach to curriculum and didactics. *Nordic Journal of Studies in Educational Policy*, *1*(1), 40–47. https://doi.org/10.3402/nstep.v1.27008

Lilliedahl, J., Sundberg, D., & Wahlström, N. (2016). Teoribaserad utvärdering som svar på det tidiga 2000-talets frågor om utbildningsreformer. *Pedagogisk Forskning i Sverige*, *21*(1–2), 9–29.

Livingstone, D. (2011). Enviromental determinism. In J. Agnew, & D. N. Livingstone (Eds.). *The SAGE handbook of geographical knowledge.* London: Sage Publications Ltd.

Longino, H. (1990). *Science as social knowledge: values and objectivity in scientific inquiry.* Princeton University Press (p. 62–82).

Lundgren, U. P. (1989). *Att organisera omvärlden: en introduktion till läroplansteori* (Organizing the surrounding world: an introduction to curriculum theory). 2. [dvs 4.] uppl. Stockholm: Utbildningsförl. på uppdrag av Gymnasieutredningen.

Lyle, J. (2003). Stimulated Recall: A Report on Its Use in Naturalistic Research. *British Educational Research Journal*, *29*(6), 861–878.

Lägnert Folke (1952). Natur och kultur i geografiundervisningen. *Geografiska notiser*, *1952*(1), s 5–7.

Lägnert Folke (1953). Regionalgeografin i skolan. *Pedagogisk Debatt*, *3–4*, s. 96–103.

Martin, D. A. (2005). *Teaching for historical thinking: teacher conceptions, practices, and constraints*. Dissertation, Stanford University

Marton, F. (2015). *Necessary conditions of learning*. London: Routledge.

Marton, F. & Pong, W. Y. (2005). On the Unit of Description in Phenomenography. *Higher Education Research and Development*, *24*(4), 335–348. https://doi.org/10.1080/07294360500284706

Massey, D. (1994). *Space, place and gender.* Oxford: Polity Press.

Massey, D. (2004). Geographies of responsibility. *Geografiska Annaler*, *86B*, 5–18.

Massey, D. (2005). *For space*. London: Sage.

Maude, A. (2015). What is powerful knowledge and can it be found in the Australian geography curriculum? *Geographical Education*, *28*, 18–26.

Maude, A. (2018). Geography and powerful knowledge: A contribution to the debate. *International Research in Geographical and Environmental Education*. Doi: 10.1080/10382046.2017.1320899

Meyer, S. B., & Lunnay, B. (2013). The application of abductive and retroductive inference for the design and analysis of theory-driven sociological research. *Sociological Research Online*, 18(1). https://doi.org/10.5153/sro.2819

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, *108*(6), 1017–1054.

Molin, L. (2006). *Rum, frirum och moral : en studie av skolgeografins innehållsval.* Department of Social and Economic Geography, Uppsala University.

Molin, L. & Alm Fjellborg, A. (2019). Geographical variations in the relation

between final course grades and results on the national tests in social sciences, 2015–2017. *Educational Review*, 1–9.

Molin, L. (2020). Nationella proven 10 år. *Geografiska Notiser, 2020*(3).

Molin, L., & Grubbströ̈m, A. (2013). Are teachers and students ready for the new middle school geography syllabus in Sweden? Traditions in geography teaching, current teacher practices and student achievements. *Norwegian Journal of Geography*, *67*(3), 142–147.

Molin, L., Grubbstrom, A., Bladh, G., Westermark, Å., Ojanne, K., Gottfridsson, H-O., & Karlsson, S. (2015). Do personal experiences have an impact on teaching and didactic choices in Geography? *European Journal of Geography*, *4*(6), 6–20.

Morgan, A. (2006). Developing geographical wisdom: post-formal thinking about, and relating to, the world. *International Research in Geographical & Environmental Education*, *15*(4), 336–352. https://doi.org/10.2167/irg199.0

Moreno-Vera, J.R., & Alvén, F. (2020). Concepts for historical and geographical thinking in Sweden's and Spain's Primary Education curricula. *Humanities and Social Sciences Communications*, 7(1). https://doi-org.proxy.mau.se/10.1057/s41599-020-00601-z

Murphy, A. (2014). Geography's Crosscutting Themes: Golden Anniversary Reflections on "The Four Traditions of Geography". *Journal of Geography*, *113*(5), 181–188.

Mårtensson, S. (1992). Huvudsakligt innehåll i kursplan för geografi. Arbetsmaterial, July 1992. *Geografiska Notiser*, *1992*(3), s. 133–137.

National Research Council (2006). *Learning to Think Spatially*. Washington, DC: National Academic Press.

Nerdal, K. (2014). *Gymnasieelevers presentationer av relationer mellan miljö och människor: en studie om utbildning för hållbar utveckling.* Licentiatavhandling Uppsala: Uppsala Universitet, 2014. Uppsala.

Nilsson, M. (2009). Geografilärare. I Schüllerqvist, Bengt & Osbeck, Christina. 2009. *Ämnesdidaktiska insikter och strategier: berättelser från gymnasielärare i samhällskunskap, geografi, historia och religionskunskap*. Karlstad.

Nussbaum, M., & Sen, A. (Eds.) (1993). *The Quality of Life*. Oxford: Clarendon Press.

Olsson, L. (1986). *Kulturkunskap i förändring: kultursynen i svenska geografiläroböcker 1870–1985*. Diss. Göteborg: Univ. Malmö.

Ottosson, T. (1987). *Map-Reading and Wayfinding*. Göteborg Studies in Educational Sciences 65. Göteborgs Universitet.

Ojanne, K. (1999). Vad är geografi för en blivande lärare? *Geografiska Notiser, 57*(1), 18–31.

Pattison, W. D. (1964). The four traditions of geography. *Journal of Geography*, *63*(5), 211–216.

Peet, R. (1998). *Modern geographical thought*. Oxford: Blackwell Publishers.

Peterson, S. (1971). *Vad vet grundskoleleven om kartan?* (Licentiate dissertation). Rapporter från Pedagogiska institutionen vid Lärarhögskolan I Göteborg, 21.

Pettersson, A. (2014). *De som inte kan simma kommer nog att dö!: en studie om barns tankar och känslor rörande klimatförändringarna*. Licentiatavhandling Uppsala: Uppsala Universitet, 2014. Uppsala.

Polanyi, M. (1966). *The tacit dimension*. London: Routledge & Kegan Paul.

Rawling, E. M. (2001). *Changing the subject/the impact of national policy on school geography 1980–2000.* Sheffield: Geographical Association.

Rawling, E. (2018). Reflections on Progression in Learning about Place. *Journal of Geography*, *117*(3), 128–132.

Reitano, P., & Sim, C. (2010). The value of video in professional development to promote teacher reflective practices. *International Journal of Multiple Research Approaches*, *4*(3), 214.

Roberts, M. (2014). Powerful knowledge and geographical education. *The Curriculum Journal*, *25*(2), 187–209.

Rosenlund, D. (2019). Internal consistency in a Swedish history curriculum: a study of vertical knowledge discourses in art, content and level descriptors. *Journal of Curriculum Studies*, *51*(1), 84.

Schreier, M. (2014). Qualitative Content Analysis. In U. Flick (Ed.), *The SAGE handbook of qualitative data analysis.* Los Angeles: SAGE.

Schmidinger, H., Molin, L., & Brandt, A. (2014). Excursions in School – Past and Present from Swedish and Anglo-Saxon perspectives. *European Journal of Geography*, *5*(4), 87–101.

Schubert, P., & Johansson, M. (2019). Geografiska informationssystem som en integrerad del av lärarutbildningen och skolundervisningen. Geographic information systems as an integral part of the teacher and school education. *Nordina: Nordic Studies in Science Education*, *15*(1). https://doi.org/10.5617/nordina.4448

Seixas, P. (2017). A model of historical thinking. *Educational Philosophy and Theory*, *49*(6), 593–605. https://doi.org/10.1080/00131857.2015.1101363

Shin, E. E., & Bednarz, S.W. (2019). Conceptualizing spatial citizenship. In E. E. Shin & S.W. Bednarz (Eds.), *Spatial citizenship education*. New York, NY: Routledge, 1–9.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, *15*(2), 4–14.

Singh, Parlo (2002). Pedagogising Knowledge: Bernstein's Theory of the Pedagogic Device. British *Journal of Sociology of Education*, *23*(4), 571.

Skarstein, F. & Wolff, L. (2020). An Issue of Scale: The Challenge of Time, Space and Multitude in Sustainability and Geography Education. *Education Sciences*, *10*(2), 28. https://doi-org.ludwig.lub.lu.se/10.3390/educsci10020028

Skolverket (1993). *Den nationella utvärderingen av grundskolan våren 1992. Samhällsorienterade ämnen. Huvudrapport.* Skolverket rapport nr 17. Stockholm: liber.

Sternberg, R. J. (1998). Abilities are forms of developing expertise. *Educational Researcher*, *27*, 11–20.

SOU 1992. *Skola för bildning: Huvudbetänkande av Läroplanskommittén (School for cultivation: Main report by the Curriculum committee)* Stockholm: Department of Education.

Sundberg, D. (2012). Läroplansteori – några samtida utvecklingslinjer. In T. Englund, E. Forsberg, & D. Sundberg (Eds.), *Vad räknas som kunskap: Läroplansteoretiska utsikter och inblickar I lärarutbildning och skola* (s. 80–99). Stockholm: Liber.

Sundberg, D., & Wahlström, N. (2012). Standards-based curricula in a denationalised conception of education: the case of Sweden. *European Educational Research Journal (Online)*, *11*(3), 342–356. https://doi-org.proxy.mau.se/10.2304/eerj.2012.11.3.342

Svingby, G. (1981). Läroplan för 80-talet. En rapport från arbetet med översyn av lgr69. In U.P. Lundgren, E. Wallin, & G. Svingby (Eds.). *Från Lgr 69 till Lgr 80: erfarenheter från SÖ:s läroplansarbete.* Stockholm: Inst. för pedagogik, Högsk. för lärarutbildning.

Sætre, P. J. (2009). *Geografi i tekst og bilde: en studie av geografibøker for ungdomsskolen fra Norge, Sverige, Danmark og Finland.* Doktorsavhandlingar ved NTNU, 2009:214.Trondheim.

Solari, O. M., Solem, M. & Boehm, R. (Eds.) (2017). *Learning progressions in geography education: international perspectives.* Switzerland: Springer International Publishing.

Tani, S. (2011). Is there a place for young people in the geography curriculum? Analysis of the aims and contents of the Finnish comprehensive school curricula. *Nordidactica: Journal of Humanities and Social Science Education*, *1*(1), 26–39.

Taylor, L. (2008). Key concepts and medium term planning. *Teaching Geography*, *33*(2), 50–54.

Taylor, L. (2017). Handling heterogeneity in English geography textbooks 1850–2000. *Journal of Curriculum Studies*, *49*(5), 683–702. https://doi.org/10.1080/00220272.2017.1330422

Torbjörnsson, T. (2011). *En för alla – alla för naturen: en studie av ungdomars attityder till hållbar utveckling.* Uppsala: Uppsala University.

Torbjörnsson, T. (2014). Solidaritet och utbildning för hållbar utveckling: en studie av förväntningar på och förutsättningar för miljömoraliskt lärande i den svenska gymnasieskolan. Diss. (sammanfattning) Uppsala: Uppsala Universitet.

Torbjörnsson, T. & Molin, L. (2015). In school we have not time for the future: voices of Swedish upper secondary school students about solidarity and the future. *International Research in Geographical and Environmental Education, 24*(4), 338–354. https://doi.org/10.1080/10382046.2015.1086105

The Swedish National Agency for Education (2011a). *Curriculum for the compulsory school system, the preschool class and the recreation centre 2011* (Lgr11). Stockholm.

Tuan, Y. F. (1977). *Space and Place: The perspective of experience.* Minneapolis, MN: University of Minnesota Press.

Uhlenwinkel, A., Béneker, T., Bladh, G., Tani, S., & Lambert, D. (2017). GeoCapabilities and curriculum leadership: Balancing the priorities of aims-based and knowledge-led curriculum thinking in schools. *International Research in Geographical and Environmental Education*, *26*(4), 327–341. https://doi.org/10.1080/10382046.2016.1262603

Uljens, M. (2018). A Contribution to Re-theorizing Curriculum Research. *TCI: Transnational Curriculum Inquiry*, *15*(2), 4.

Uljens, M. & Ylimaki, R. M. (Eds.) (2017). *Bridging educational leadership, curriculum theory and didaktik: non-affirmative theory of education.* Cham: Springer Open.

Van Der Schee, J., Leat, D., & Vankan, L. (2006). Effects of the Use of Thinking Through Geography Strategies. *International Research in Geographical & Environmental Education*, *15*(2), 124–133. https://doi.org/10.2167/irgee190.0

Wahlström, N. (2009). *Mellan leverans och utbildning: om lärande i en mål- och resultatstyrd skola.* Göteborg: Daidalos

Wahlström, N. (2014). Utbildningens villkor II – en denationaliserad utbildningskonception. *Utbildning & Demokrati*, *23*(2), 77–94.

Wahlström, N. & Sundberg, D. (2015). *En teoribaserad utvärdering av läroplanen Lgr 11*, IFAU-rapport 2015:7 [Elektronisk resurs]. IFAU – Institutet för arbetsmarknads- och utbildningspolitisk utvärdering.

Wahlström, N. & Sundberg, D. (Eds.) (2018). *Transnational curriculum standards and classroom practices: the new meaning of teaching.* London: Taylor & Francis Ltd.

Wahlström, N., Adolfsson, C.-H., & Vogt, B. (2020). Making Social Studies in Standards-Based Curricula. *Journal of Social Science Education*, *19*, 66–81.

Walkington, H., Dyer, S., Solem, M., Haigh, M., & Waddington, S. (2018). A capabilities approach to higher education: geocapabilities and implications for geography curricula. *Journal of Geography in Higher Education*, *42*(1), 7–24. https://doi.org/10.1080/03098265.2017.1379060

Wennberg, G. (1990). *Geografi och skolgeografi: ett ämnes förändringar: en studie med exempel* = [Geography and school geography]: [changes in a school subject] [a study with examples]. Univ.

Westheimer, J., & Kahne, J. (2004). What Kind of Citizen?: The Politics of Educating for Democracy. *American Educational Research Journal*, *41*(2), 237–269.

White, J. (2018). The weakness of "powerful knowledge". *London Review of Education*, *16*(2), 325–335.

Winter, C. (2017). Curriculum policy reform in an era of technical accountability: 'fixing' curriculum, teachers and students in English schools, *Journal of Curriculum Studies*, *49*(1), 55–74, DOI:10.1080/00220272.2016.1205138

Wood, P. (2013). How is the learning of skills articulated in the geography curriculum? In D. Lambert, & M. Jones (2013). *Debates in geography education*. Milton Park, Abingdon, Oxon; New York: Routledge.

Wood, P., & Butt, G. (2014). Exploring the use of complexity theory and action research as frameworks for curriculum change. *Journal of Curriculum Studies*, 46(5), 676–696. https://doi.org/10.1080/00220272.2014.921840

Woolhouse, J. (2016). A Case Study of Progressing Geography Fieldwork Skills over Years 7–10. *Geographical Education*, *29*, 40–45.

Yli-Panula, E., Jeronen, E., & Lemmetty, P. (2020). Teaching and Learning Methods in Geography Promoting Sustainability. *Education Sciences*, 10.

Young, M. (2008). *Bringing knowledge back in: From social constructivism to social realism in the sociology of education.* Oxford: Routledge.

Young, M. (2013). Overcoming the crisis in curriculum theory: A knowledge-based approach. *Journal of Curriculum Studies, 45*(2), 101–108.

Young, M.F.D. & Lambert, D. (2014). *Knowledge and the future school: curriculum and social justice.* New York: Bloomsbury Academic.

Young, M., & Muller, J. (2013). On the powers of powerful knowledge. *Review of Education*, *1*(3), 229–250.

LUND STUDIES IN EDUCATIONAL SCIENCES

Previously Published in the Series:

13. Svensson, Eva 2020. *Lärares användning av digitala resurser i undervisningen – "Kombinationen av ett praktiskt verktyg och en skicklig lärare"*
12. Lagerholm, Charlotte 2020. *Tryckt bild eller avbildat tryck? Visuella representationer av begrepp relaterade till tryck i fysiklärоböcker för högstadiet.*
11. Malm, Mimmi 2020. *Barn resonerar kring naturvetenskapliga fenomen – I sagans värld på förskolan.*
10. Lundberg, Janna 2020. *Samhällskunskap för alienerad elit – Observationsstudie av Särskilda läroverket.*
9. Blennow Katarina 2019. *The Emotional Community of Social Science Teaching.*
8. Ollinen, Karin 2019. *Digitala verktyg i en naturvetenskaplig undervisningspraktik – Lärares beskrivningar och hur deras TPACK påverkar undervisningen.*
7. Teke, Hans 2019. *Increasing Ethical Awareness – The Enhancement of Long-Term Effects of Ethics Teaching: A Quantitative Study.*
6. Karlsson, Ingemar 2019. *Elever i matematiksvårigheter – lärare och elever om låga prestationer i matematik.*
5. Lind, Johan 2019. *Elevers förståelse av tekniska system och designprocesser – Det är tekniskt, ganska svårt och avancerat.*
4. Abrahamsson, Cristian 2019. *Elevengagemang ur ett NO-lärarperspektiv – Hur lärare uppfattar elevers engagemang och dess betydelse för lärarrollen och undervisningen.*
3. Bosseldal, Ingrid 2019. *Vart tog behaviorismen vägen? Social responsivitet mellan barn och vuxen, hund och människa.*
2. Pennegård, Eva 2019. *Att se undervisningen genom elevernas ögon – En studie om hur lärare och elever beskriver att lärares undervisning gynnar elevers lärande i naturvetenskapliga ämnen på högstadiet.*
1. Malmström, Martin 2017. *Synen på skrivande – Föreställningar om skrivande i mediedebatter och gymnasieskolans läroplaner.*