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Teaching sustainability in a geographical context

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Sammanfattning

Denna studie undersöker de geografiska sammanhang som formar geografilärares idéer och undervisning om hållbar utveckling i grundskolan i Serbien. Syftet är att bidra till förståelse om hur idén om hållbar utveckling tolkas i de lokalt unika förutsättningar som utgör geografilärares geografiska sammanhang.

Studien genomfördes som en fältstudie i Serbien, ett samhälle med en modern historia av krig och konflikt samt stora sociala, ekonomiska och miljömässiga problem. Serbien är idag på väg att påbörja förhandlingar om ett medlemskap i den Europeiska Unionen (förhandlingar är planerade att starta i januari 2014). Sju kvalitativa intervjuer gjordes med åtta geografilärare från tre olika städer av varierande storlek i Serbien. Den tidsgeografiska helhetsmodellen utgjorde analyschema och begreppsapparat. Andra teoretiska utgångspunkter om korologi och den intima relationen mellan rum och socialt beteende var viktiga för förståelsen av resultaten.

Slutsatserna visar att de faktorer som skapar det geografiska sammanhanget främst är regleringar såsom läroplanen. Också samhällliga värderingar och sociala förutsättningar är viktiga faktorer för att forma det sammanhang lärare arbetar i. Även externa aktörer som frivilligorganisationer och företag kan påverka undervisningen och i den lokala och nationella miljön finner lärare praktiska exempel - som fall av miljöförstöring - vilka blir utgångspunkter för undervisning. Hållbar utveckling är dock relativt frånvarande i den Serbiska geografiundervisningen som generellt kan betecknas som en faktabaserad normativ miljöundervisning. Detta förklaras i hög grad av frånvaron av hållbar utveckling i den starkt reglerande läroplanen men också med att viktiga resurser som tid och kunskap om hållbar utveckling saknas.

Nyckelord: Utbildning för hållbar utveckling, geografiundervisning, geografiskt sammanhang, fältstudie, Serbien

Abstract

This study explains how different factors of the geographical context shape geography teachers' understanding and teaching of sustainable development in primary education in Serbia. The idea of sustainability is interpreted differently depending on the locally unique conditions that constitute the geographical context.

The study was performed as a field study in Serbia a post-conflict society with large social, economical and environmental problems. It is also on its way to enter negotiations regarding membership in the European Union (start of negotiations is planned for January 2014). Seven qualitative interviews were conducted with eight geography teachers from three cities of varying size in Serbia. The time geographic holistic model offered a frame of reference. Theoretical notions of chorology and socio-spatial dialectics were important in interpreting the findings.

The results show that the foremost factors shaping the geographical context are structural regulations such as curriculum. Societal values and social issues are also significant, as are the external agents and the local and national environment. Sustainable development is relatively absent in Serbian teaching, which can be categorized as fact-based normative environmental education. This

lack of focus on sustainable development is due in part to the highly-regulated form of Serbian teaching, but also derives from a lack of resources, as both time and knowledge of sustainable development are lacking.

Keywords: Education for sustainable development ESD, geography teaching, geographical context, field study, Serbia

Preface

My interest in the issue of sustainable development was triggered by a seventh grader during my teacher education practice. We had watched the movie “An inconvenient truth” and were discussing current problems and solutions. This boy asked very creatively if we could not shoot our waste into outer space, and the waste problem at least would be solved. This prompted a discussion about sustainability in class that gave me much food for thought. My teacher education, specializing in social science and geography, has given me the opportunity to study several perspectives on sustainability. My interest in this subject has grown along with my understanding of its difficulties.

The Minor Field Study (MFS) scholarship from SIDA gave me the opportunity to conduct an eight-week field study in a developing country¹. I wanted to deepen my understanding of how sustainability is understood and interpreted in a less developed country. As a future teacher, schools and teachers were a natural field of study.

Now at the end of my geography studies, I see great potential in geography teaching to benefit the problems of sustainable development. During the process of this study I have realized also that where we are matters a great deal. One of the teachers said “We can not change where we are”. She meant that as a teacher, local history and its consequences were impossible for her to ignore. The geographical context – where she is - has an unconditional significance for her as individual and in her teaching. Locality is of utmost importance when speaking about the connection between global sustainable development and education.

I would like to express my deepest thanks to the teachers who showed interest in my study and gave their time: Alexandra and Biljana, Mira, Dusica, Slavisa, Biljana, Ana and Ljiljana. My study would not have been possible without the kind help from my contacts in Serbia: Professor Olivera Gajic, Professor Svetlana Kijevcanin and Professor Emina Kopas. My interpreters Tamara Klicek, Ivan Ilic and Alexandra Mihajlovic also made a great effort in helping me. Thanks to Sanja my days in Belgrade were a lot happier, and a very special thank you to Sandra who so generously offered her time, help and friendship in Belgrade. I also thank SIDA and the Department of pedagogical, curricular and professional studies at the University of Gothenburg for the opportunity this scholarship provided, and Gunnar Hällgren for his help and advice. At the end of my work I had great help from Kirsten Nyborg and Birgitta Norman with proofreading and editing my text. In the end, this study owes much to my supervisor Åsa Westermarck and I owe much to my partner Magnus for his constant support; without him, this idea would never have come so far.

It should be remembered that the eight teachers taking part in this study are different individuals. They develop their professional views and reasoning in different directions and they have different goals for their teaching. The interpretations of their statements are mine, and I have aimed to convey their positions accurately.

Marie Norman
Gothenburg, the 13th of January 2014

¹ As defined by OECD-DAC.

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Abbreviations

ESD	Education for sustainable development
EU	European Union
IGU	International Geographical Union
IMF	International Monetary Fund
NGO	Nongovernmental organization
UN	United Nations
(UN)DESD	(United Nations) Decade on Education for Sustainable Development
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational Scientific and Cultural Organization
SD	Sustainable development

1 Introduction

The world is currently threatened by an environmental and economical crisis. Our global use of natural assets and unequal distribution of wealth is leading to climate change and global injustice. Development is far from sustainable and the consequences are most probably going to be severe and far reaching.

Knowledge and awareness are important factors in changing the current development, as change must happen at the highest political level as well as in the everyday lives of people. Education is therefore one of the keys to a more sustainable development in the long and short term. In 2005 the United Nations (UN) proclaimed the ten years following to be the international Decade of Education for Sustainable Development. This was with the overall goal to “(...) integrate the values inherent in sustainable development into all aspects of learning” (UNESCO, 2006). However, ‘sustainability’ is not a notion with universal meaning that is generally applicable in the same way everywhere. People and teachers interpret and implement sustainability differently, depending on their own geographical context. Therefore, the teaching about sustainability will be shaped by local conditions.

Understanding how geographical space and place shape the interpretation of sustainability will help us understand global development in terms of local scales of time and space. That is one objective of this study.

If the UN is right about the value of education for sustainable development, then it is also of great importance to understand how teachers interpret and mediate this concept in their teaching. The teacher is inevitably acting within a geographical context when interpreting learning objectives or planning and implementing teaching. He or she is a part of that context, and as an educator is an important actor and recreator of context. The context is defined on different geographical scales, local, regional and global, and can span a wide range of factors. Hungry children of poor families in the community, national curricula regulating education or new results from PISA tests are all examples of factors that influence teachers in different ways, shaping their teaching.

Teaching is conducted as an interplay with conditions that vary over time and space and influence the questions of ‘what,’ ‘how’ and ‘why’ in education. That is: What is being taught, how and why? Is education regarding sustainable development focused mainly on environmental issues, solidarity with poor people or learning waste sorting in everyday life? How can these subject theoretical and geography didactical questions be answered within the specific geographical context?

Serbia is a post-war country that was part of the now shattered Yugoslavia. The country is still fighting with internal ethnic and territorial conflicts on its road to membership in the European Union. The economy suffered badly in the economic crisis in 2008, and five years later high levels of unemployment and social problems still endure. In 2003 an educational reform was introduced in Serbia; one of fifteen general objectives of the reform was targeting education for sustainable development. The intentions of this objective have though not trickled down to curriculum and teachers.

This objective is part of a reform aimed at aligning the Serbian educational system with the European Union. The result is evaluated in the Progress Report from 2013 which states that “Overall, preparations for aligning with EU standards are moderately advanced” (European Commission, 2013, s. 54); the report also emphasizes that much work is yet to be done.

Serbian educational researchers support this finding, arguing that there is a low general awareness about SD and formal education is not fit for the goals of ESD (Andevski, Urosevic, & Stamatovic, 2012, s. 1614). The school system and education in Serbia, as with the rest of society, suffered badly from the financial crisis. Education in Serbia is financed with 3% of Serbia's GDP, which can be contrasted to Sweden spending 25% of GDP on education. The fact that the GDP of Serbia is about one tenth of Sweden's adds to the understanding of the resources on which the Serbian education system is built (Utrikespolitiska institutet, 2012).

Serbia's history of conflict and recent problems with economy and educational reform indicates several key aspects in our discussion of how geographical context can shape the interpretation of sustainability in society and among teachers.

1.1 Objective and questions

The perspective of this project is geographical. It is based on the fundamental geographical idea that place and location matters. The objective of this study is to understand how place and location - geographical context - shape teachers' ideas and teaching of sustainable development.

The main question is: How does geographical context shape teachers' interpretation of and teaching about sustainable development?

Two questions must be posed in order to answer this main question.

- a. What characterizes the Serbian geographical context as shaper of teaching for sustainable development?
- b. How do teachers define and teach about sustainable development in geography teaching?

The first question aims at describing what factors are shaping the geographical context and teaching for SD. The holistic model of time geography is used to analyze and describe which societal and material conditions are at work when teaching takes place in the geographical context.

The second question aims to understand how the projects of teaching geography and sustainable development are shaped by the geographical context. It seeks answers for how teachers interpret and teach sustainability in the geography subject. The time geographic holistic model is used to put the shaping factors from the first question into the context of the second. To answer these questions the Serbian context is studied and eight teachers are interviewed in location. During seven semi-structured deep interviews their statements were recorded to later be transcribed and analyzed. The respondents of this study have different backgrounds and various amounts of experience as teachers. Together they form the base for this study's results.

1.2 Delimitation

This study is confined to geography teaching in the later years of primary school. The geography subject has been argued to be suitable for ESD (Reinfried, Schleicher, & Rempfler, 2007). It has also been subject to earlier research on ESD (Fridfeldt & Molin, 2010) (Jansund & Westermark, 2013) (Commission on Geographical Education, 2000) (Lee & Williams, 2006) (Reid, 2000).

Serbia has compulsory education for all children from the age of 6.5. At the age of seven, children go to primary school which is divided into two four-year cycles. In the first cycle (grade 1-4) students have classroom teachers. In the second cycle (grade 5-8) students have subject teachers. Subject teachers teach a limited range of subjects, often two or three, as opposed to classroom teachers who teach all subjects (UNESCO, 2011). Subject teachers of geography are most suitable for this study as they are more focused on geography teaching than classroom teachers.

1.3 Disposition

The following paper is organized by first describing the scientific context in which this study has taken place (chapter 2). The research context and frame of reference is described and discussed based on the study objective. The area of study (chapter 3) is then described in terms of history, economical and educational aspects. The methodological position (chapter 4) of the study is accounted for as the overall research process and capacities are discussed. The results (chapter 5) are described under the headlines *Geographical context* and *The teaching project*. The results and reliability of the study are then discussed (chapter 6) and placed in a greater context. Finally the results of the study are concluded (chapter 7).

2 Research context and frame of reference

Much has been said about Sustainable Development (SD) and Education for Sustainable Development (ESD), both of which are central concepts for this study. I have made a selection of recent research and international documents to understand the current debate regarding ESD and ESD for geography teaching in particular.

This chapter begins with definitions of sustainable development and education for sustainable development. Previous relevant research on didactical issues of geography and sustainable development are then examined. The chapter ends with a description of time geography and its holistic model, which are used as frame of reference.

2.1 Definitions of sustainable development and education for sustainable development

To be able to examine teachers' understandings of SD and ESD it is necessary to define these concepts. This is done by referring to previous research and relevant political international documents.

2.1.1 International documents on sustainability

Since the 1970s The United Nations (UN) has been an important agent in defining and promoting the need for perspectives on sustainability. A number of international meetings and conferences initiated by the UN have been held on issues concerning our common environment, sustainable development and education for sustainable development. Thus, the UN has had an important role in setting issues of sustainability on the international agenda. Documents and agreements by the UN have also had an important role in defining sustainable development. This is shown by the frequent reference to UN documents in research on SD and ESD. One example is the (UN) Rio conference in 1992 which spent a chapter on ESD in its action program. There, education was pointed out as a vital way for people to change their attitudes, solve problems, gain awareness and take part in decision making processes concerning the development for a more sustainable world. This program argued that education should cover aspects of the physical as well as biological, social and economical environment and be part of all subjects and sciences (SOU 2004:104, 2004). Since its release this document has guided the development of ESD. When the United Nations (UN) designated the ten years from 2005 to 2014 as the international Decade on Education for Sustainable Development (DESD), it was with the overall goal to "(...) integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behavior that allow for a more sustainable and just society for all" (UNESCO, 2006, s. 3).

The Framework for the UNDESD mirrors the definition from the frequently quoted Brundtland Commission of 1987, which for the first time articulated the concept of sustainable development by defining it as "development which meets the needs of current generations without compromising the ability of future generations to meet their own needs" (UNECE United Nations Economic Commission for Europe). The Framework also reflects the Brundtland Commission's definition of sustainable development as based on three dimensions of development: social, environmental and economical. The Framework also adds the fourth dimension of culture running alongside the other three.

“The values, diversity, knowledge, languages and worldviews associated with culture strongly influence the way issues of education for sustainable development are dealt with in specific national contexts. In this sense, culture is not just a collection of particular manifestations (song, dance, dress, ...), but a way of being, relating, behaving, believing and acting through which people live out in their lives and that is in a constant process of change” (UNESCO, 2006, s. 4).

The Framework speaks of the geographical context defined by “values, diversity, knowledge, languages and worldviews,” how this context shapes people and their “way of being, relating, behaving, believing and acting,” and how this is all in constant change. In short, the Framework pinpoints the importance of geographical context in the varying interpretations of sustainability. The Framework also defines ESD as being fundamentally about values such as respect for others, both present and future generations, and for difference and diversity across the globe (UNESCO, 2006).

Similar ideas of ESD are formed in the Luzern declaration from 2007. The declaration is written by the International Geographical Union (IGU) and its Commission on Geographical Education. Geographical education is meant to teach geographical skills and knowledge, addressing understanding of natural and socio-economic systems together with the attitudes and interdisciplinary competences which will render a more sustainable development. The declaration also states that sustainable development and consequently education for sustainable development are always culturally defined. (Reinfried, Schleicher, & Rempfler, 2007, s. 246)

2.1.2 Sustainable development in previous research

The geography educators Tan and Chang from the University of Singapore defined sustainability in an article in *International Research in Geographical and Environmental Education* as follows. “Inherent in the concept of sustainability is the idea that development should be kept apace so that future generations’ development will not be compromised” (Tan & Chang, 2008, s. 289).

The Swedish researchers Anders Fridfeldt and Lena Molin define SD and ESD as they describe the process of creating new Swedish curricula for the geography subject in 2011. Their definition includes “skills to analyze geographical links and understanding consequences of different activities and actions for a sustainable development” (Fridfeldt & Molin, 2010, s. 117)(my translation)². Ellen Almers calls this definition “distance moral”, (avståndsmoral). That is, stretched over time and space and defined by the responsibility to act for the common good of present and future populations across the globe. Almers also defines action competence as central for SD. Accordingly, the willingness and capability to support changes in individual life style and societal structure in a way that is responsible towards present and future generations globally, is a central aspect of ESD (Almers, 2009, s. 66).

In this study several of the teachers refer to teaching about environmental problems as ESD. This is logical since ESD has its roots in environmental education. However, today ESD has taken a different path and has certain distinguishing features. These are important to define and separate ESD from other teaching traditions. Sandell, Öhman and Östman (2005) show differences between the

² ”(...) kunskap att analysera geografiska samband och se konsekvenser av olika aktiviteter samt utifrån detta ha insikt i vad som krävs för att agera för hållbar utveckling”.

different traditions of education for environmental and sustainability issues. These are described in table 1 (my adaptation of (Sandell, Öhman, & Östman, 2005, s. 167)). What distinguishes ESD from traditions of environmental education is a larger scale of central areas included, a different method of teaching and a wider perspective on time and geographical extension (Sandell, Öhman, & Östman, 2005). As seen in table 1 below, other teaching traditions as “*Fact-based Environmental Education*” and “*Normative Environmental Education*” include a more limited range of central areas. The time perspective is different as it is more focused on the present and to some extent the future. The ESD on the other hand has a wider perspective with the future in relation to the past and the present. This is also allowing a more critical discussion of actions and consequences as method of teaching. Something which is lacking in the *Fact-based* and *Normative* traditions of environmental education.

As we will see in the following results the teachers interviewed refer mainly to issues of environmental problems when asked to tell about their teaching for sustainable development. They have a strict curriculum to follow and a lot of factual and theoretical knowledge to teach. This is not allowing much time spent on critical discussion or widening of perspectives, which is characterizing ESD.

	Fact-based Environmental Education	Normative Environmental Education	Education for Sustainable Development
Central areas and subjects of knowledge	Natural sciences	Natural sciences and aspects of social science	Economical, social and ecological perspectives as well as ethical and aesthetical aspects.
Time perspective	Present	Present and future	Future in relation to the past and present.
Geographical perspective	Local	Local and global	Local, regional and global incorporated
Main method of teaching	Factual information from teacher to student	Student active in the development of knowledge and values	Critical discussion based on a number of alternatives

Table 1 Differences between three traditions of environmental education (Sandell, Öhman & Östman (2005) p 167)(My adaptation and translation)

In sum, definitions of SD and ESD have been influenced by the Brundtland Commission to include environmental, social, economical and cultural aspects. My definition based on what have been found is: ESD includes aspects of time and space and is consequently defined as future oriented and globally relevant. Students are to see geographical links and consequences of different actions and to gain respect, responsibility, understanding and participation resulting in action competence and distance moral.

2.2 Didactical research on sustainable development

2.2.1 Teachers' attitudes to sustainable development

There is little research on teachers' understanding of and attitudes towards SD (Cotton, Warren, Maiboroda, & Bailey, 2007) (Björneloo, 2007). The Swedish researcher Inger Björneloo (2007) used interviews to examine how teachers interpret and constitute the concept of ESD. Many of the teachers she interviewed had difficulties defining the concept. So, Björneloo analyzed what the teachers wanted their students to learn in order to contribute to a sustainable development. The ESD according to Björneloo's analysis comes down to this: the students should learn responsibility for the common earth, understand the consequences of behavior, and 'practice what one preaches' (Björneloo, 2007). These results reflect the definitions discussed in earlier research (Fridfeldt & Molin, 2010) (Almers, 2009).

Also in 2007, Cotton, Warren, Maiboroda and Bailey published their research on lecturer's beliefs and attitudes to SD. This study found that most respondents defined sustainable development as an environmental issue rather than a social or economic one. Attitudes toward sustainable development were positive but again evinced uncertainty regarding the precise definition of SD (Cotton, Warren, Maiboroda, & Bailey, 2007).

In 2006 Greek researchers studied environmental teachers' conceptual understanding of sustainable development. Approximately one third of the replies showed good conceptual knowledge of sustainable development. On a one to five nominal scale, the strongest supports were given to statements explaining sustainable development as including social, economic and environmental factors, and as addressing these issues on a local, regional, national and global scale (Athanaïos, Polyxeni, & Anastasios, 2006).

These results reflect the definitions used in international documents and earlier research, but also suggest that many teachers have difficulties defining the concepts of SD and ESD with their own words. Teachers' definitions and attitudes can be seen in their statements and expressed values.

2.2.2 Geography didactics and sustainable development

In the following section I will make reference to geographical research relevant to understanding how geographical context shapes teachers attitudes and teaching on SD. I also use prior research to describe how ESD can be included in geography teaching.

The notions of space and spatiality have always played an important role in the understanding of human geography. The following quote (in my translation) from Gren & Hallin (2003) puts the concept of space and spatiality in the very center of geographical studies.

"In everyday life, our agency is always related to spatial context and conditions. (...) a social subject can never stand outside that structure which is the spatial context" (Gren & Hallin, 2003, s. 78)

The social space constitutes every subject's scene for action: it forms the conditions for agency, putting up frames and limitations but also defining possibilities. The social space is a structure of

power relations and hierarchy and can be defined on many levels from local to global (Gren & Hallin, 2003, s. 79).

Space has been differently interpreted by researchers throughout the development of geography as field of research. One theoretical perception of space is that it is relative (relationell rumsuppfattning). This is called relativism. It ascribes importance to people's conceptions about space, thereby giving space a role of great importance in all social life (Gren & Hallin, 2003, s. 87). This perception of space is linked to the socio-spatial dialectics that claim space and social life are intimately related to each other and shaping each other constantly (Gren & Hallin, 2003, s. 154). Here, space is constructed continuously by people and societies and cannot be separated from social life as either condition or consequence. Space is socially constructed based on the relational perception of space (Gren & Hallin, 2003, s. 157).

A related theoretical starting point is that of environmental psychology, which stresses the importance of spatial settings and experience as the conditions of agency, attitudes and behavior (Gren & Hallin, 2003, s. 130). There is also the theoretical idea of friction of distance, which emphasizes the significance of spatial distance as a restraining influence in spatial interaction. The rule is: the larger distance, the greater obstacle of spatial interaction (Gren & Hallin, 2003, s. 104).

Linked to these ideas is the notion of chorology, the study of separate smaller units of the surface of the earth, i.e., states, regions and neighborhoods. The chorology includes two types of relations: vertical and horizontal. The vertical type focuses relations between units on the ground based on the idea of closeness (närhetsprincip). The horizontal is based on functional networks and structures of dependency in horizontally organized spaces (Gren & Hallin, 2003, ss. 190-192). In our study the vertical relations are seen in the working at a school that is located near a university. This closeness facilitates strong relations, yielding the positive outcome of new knowledge and inspiration to the school's teachers. The horizontal connections are seen for instance in the rigidly regulating curriculum, one of the school's most important shaping factors.

In the previously mentioned Luzern Declaration it says "Geography Education can greatly contribute to achieving the goals of the United Nations Decade of Education for Sustainable Development by providing relevant knowledge, skills, values and attitudes crucial for a peaceful coexistence of individuals with nature on this planet" (Reinfried, Schleicher, & Rempfler, 2007, s. 246). The Declaration argues that geography education includes several or all of the perspectives (several of which are listed above) that the DESD Framework describes as vital, since they all carry a geographical aspect. The Declaration proposes that the concept of SD is integrated into teaching of Geography at all levels and in all parts of the world (Reinfried, Schleicher, & Rempfler, 2007).

The IGU's Commission on Geographical Education states that geographical education enables people to critically evaluate their ways of living and understand the impacts of their lives for the development of other people and places (Commission on Geographical Education, 2000).

In the Swedish curriculum from 2011 as discussed by Fridfeldt and Molin (2010), geography education must support students' action competence and decision making, but also contribute to their democratic education and willingness to take part in public debate (Fridfeldt & Molin, 2010). Serbian educational research shows a form of educational tradition that is not fit for the goals of ESD,

being “closer to real life” and focusing on its students’ “capacity to act” (Andevski, Urosevic, & Stamatovic, 2012, s. 1614).

Jansund and Westermark (2013) have argued that teachers do prioritize teaching about sustainable development, but find the concept indistinct. Referring to Molin (2011), they suggest that teaching could improve if it were better connected to the students’ concrete reality. They describe how time geography can be used in geography education for sustainable development, to clarify the connections between global issues and actions in the everyday life. The holistic model of society allows for description of complex geographical systems. Small scale activities in everyday life can be seen in the context of regional and global societal issues of sustainability (Jansund & Westermark, 2013).

2.3 Time geography as frame of reference

A suitable frame of reference for the study is offered by time geography. Time geography focuses on the connection of time and space and offers a conceptual structure fitted to research on the interaction of societal processes with people and their everyday activities. It can be used to analyze and describe the complex patterns of how people and resources link and work together in space and time (Jansund & Westermark, 2013, s. 26).

The frame of reference used to analyze and describe the geographical context is built on the theoretical description of the world as put together by six layers. This model is seen in figure 1. It is used in time geography and can offer a structure for the analysis when sorting out connections and patterns. The model is adapted from Bo Lenntorp (2005) and described by Jansund and Westermark (2013) as a model that sorts knowledge in a systematic way, categorizing the world and naming complex structures. This model represents a geographical way of observing the world (Jansund & Westermark, 2013, ss. 28-29).

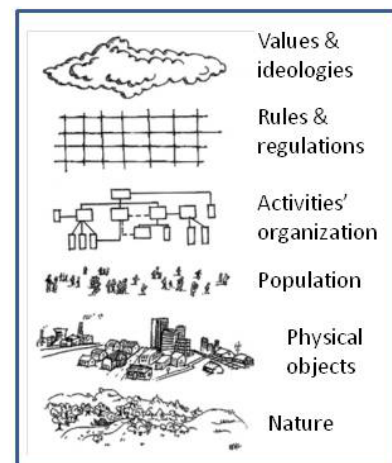


Figure 1 Six layers to describe the settings of interaction between human and natural spheres (Jansund & Westermark, 2013)(My translation)

These six layers are also parts of the time geographic holistic model shown in figure 2. Figure 2 illustrates how the structural conditions from the six layered model shape activities and everyday life by resources and restrictions. As the layers take place in the holistic model they transform into parts of a whole. What has previously been referred to as layers are now referred to as parts. *Layers* and *parts* are only different ways of describing the same phenomena, but in different contexts.

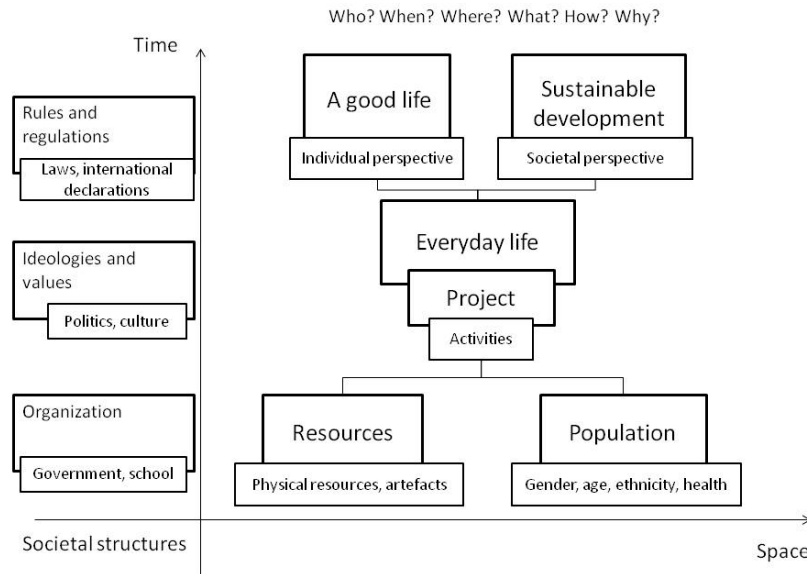


Figure 2 Time geographic holistic model (Jansund & Westermark, 2013) (my translation)

In figure 2 the top three tiers of the layered model are found as parts to the left of the y-axis. These are the non-material parts (rules & regulations, ideologies & values, organization). The material parts are shown to the right of the y-axis and above the x-axis. Below the x-axis is the past. The physical parts are all limited in time and space; they are in the time-space area (tidrummet).

The layered model is consequently part of the holistic model. In this specific study the holistic model is used to describe the geographical context as constituted by non-material and material factors. The holistic model is then describes how these factors shape the project of teaching sustainable development. It also illustrates how this project is part of the greater teaching project and the overarching goals of the geography subject.

Time geography puts focus on activities and their meaning for the smaller and greater projects that constitute everyday life. It also facilitates this study to focus on both horizontal and vertical types of relations, fitting well with the previously discussed geographical didactical framework. According to Jansund and Westermark, the model of the layered world together with the holistic model can answer the fundamental time geographical questions of 'who, where and when,' and the didactical questions 'what, how and why.' Since this study focus on geography teachers' perceptions and teaching of sustainable development, these questions are highly relevant.

The constraints that shape and affect all activities and projects in the holistic model are important parts of a time geographical analysis:

- Capability constraints limit activities due to basic needs like food and shelter; they also include the lack of technologies necessary for certain activities.
- Coupling constraints define how, where, when and for how long a person must be connected to another person (or to materials) to be able to perform an activity.

- Authority or steering constraints are the limits posed by less materialized conditions such as norms and praxis; hierarchies and lack of power can also pose these limitations (Gren M. , 2009, s. 282).

Constraints are by definition a lack of opportunity and resource, including time, space and/or physical objects. Every resource and opportunity is a possible constraint if it is lost or possessed in an insufficient quantity. Likewise, every constraint is a lack of resources that can be ameliorated by the increase of the necessary resource. This view of resources as both opportunities and constraints is also discussed by Westermark (2003) in her dissertation with a time geographic analysis (Westermark, 2003, s. 94).

Finding what constraints are important in shaping teachers' ideas and teaching of sustainable development is an important part of understanding the geographical context. Since the resources and constraints are central parts of the holistic model, they pose conditions and requirements for the projects and actions of everyday life. This study will show that the resources of time and knowledge are foundational in shaping teachers ideas and teaching of sustainable development.

3 Serbia as area of study

The following text describes the geographic area of this study. It describes a region and country constantly on the borders of clashing cultures. The text examines the geographical context (including the geographical background) in which this study has been executed, which is necessary to understand the results of this study. For these purposes a short history of modern Serbia is painted, from its history of conflict and current economical problems to the fundamental features of its educational system.

3.1 A Serbian history of constant conflicts

Serbia is a rather young country in its present state but it possesses an old culture and history. It is located on the world's crossroads and on the borders of empires in east and west. Consequently, it has been the scene for many conflicts, wars and battles. Serbia is today a country of about 7.2 million inhabitants and home to Serbs, Hungarians, Bosnians and Roma people speaking Serbian, Hungarian and Albanian, all on an area about one fifth the size of Sweden (Utrikespolitiska institutet, 2013).



Figure 3 Map of Serbia (Central Intelligence Agency, 2008)

former bottom of the Pannonian Sea, Vojvodina is richer and more prosperous than the southern parts of Serbia (Utrikespolitiska institutet, 2013).

From the 1920s to the Second World War Serbia was scene to constant conflicts between different political and ethnic groups. During the Second World War these conflicts escalated and more people were killed in internal fights than in the battles with the occupation forces. After the Second World War till the 1990s Serbia was part of the Federal Republic of Yugoslavia. Then Yugoslavia' leader Josip Broz "Tito" died, causing internal conflicts to blaze up and shatter the Yugoslavia. The 1990s were dominated by conflict and war between ethnic groups in the former Yugoslavian Republic. Slovenia,

Croatia, Bosnia and Macedonia all declared their independence from the federal republic during this time.

As Kosovo declared its independence from Serbia another war began. This war stretched on to 1999 when NATO bombing forced Serbian troops to leave Kosovo. The last piece of the Yugoslavian Federation, the union of Serbia and Montenegro, was dissolved as both declared their independence in 2006. The conflicts of the 90s have been difficult to leave behind. The Kosovo conflict is an ongoing issue and strong nationalism has been exposed in demonstrations as several suspects of war crimes were arrested and delivered to the International Criminal Tribunal for the Former Yugoslavia in The Hague (Utrikespolitiska institutet, 2013).

3.2 Economical problems and membership of the EU

The Serbian economy paid a high price for the wars, international sanctions and economic maltreatment of the 1990s. In the beginning of the 21st century Serbia experienced positive economical development, but it suffered badly from the economic crisis in 2008. According to the International Monetary Fund (IMF) the crisis exposed an unsustainable growth model and a number of key vulnerabilities. The IMF especially noted Serbia's wide-spread structural rigidities, high unemployment levels (between 20 and 25 %) and difficulty achieving a low and stable inflation (IMF, 2013, s. 4). Together with a negative balance of trade and a budget deficit between 5.2 and 7 % of GDP, as well as growing international debt, Serbia has serious economical challenges barring its path to the European Union (The Swedish Embassy Belgrade, 2013).

The two most important issues for Serbian foreign policy are Kosovo and the European Union; these are closely connected. The neutralization and stabilization of relations between Kosovo and Serbia is one condition for Serbia to enter the EU. Statements and formal measures by both countries are monitored by the EU as Kosovo also aims to become a member state. Serbia received its status as candidate country in 2012; negotiations have been postponed several times and are now planned to start in January of 2014 (European Commission, 2013).

3.3 Educational system aligning with EU standards

A new educational system was adopted in Serbia in 2003, introducing updated objectives and curricula. The motivation to reform the educational system was the "improvement of the teaching and learning process, as well as the quality of knowledge, skills and working competences" (Bojanic, 2004). The reform was based on a number of general principles and objectives for education. One of the 15 general objectives is

"To create awareness about the importance of sustainable development, protection and preservation of nature and the environment, ecological ethics, and animal protection"
(UNESCO, 2011, s. 2)

This objective regarding sustainable development and environmental protection is aimed at aligning the Serbian educational system with the goals and practices of the European Union. This interpretation is confirmed in the Progress Report from 2013 which states that "Overall, preparations for aligning with EU standards are moderately advanced," though also emphasizing that some work is yet to be done.

The Progress Report paints a picture of low general awareness on the issues of environment and sustainability, claiming “significant additional efforts are needed to further align with EU policies in areas such as water, waste, management, air quality and nature protection” (European Commission, 2013, s. 56). Research into Serbian education gives a similar picture of a formal tradition not fit for the goals of ESD, being “closer to real life” and focused on providing students with “a capacity to act” (Andevski, Urosevic, & Stamatovic, 2012, s. 1614).

The school and education system in Serbia, as in the rest of society, suffered badly from the financial crisis. Education in Serbia is financed with 3% of Serbia’s GDP, which contrasts with Sweden spending 25% of GDP on education. The fact that the GDP of Serbia is about one tenth of Sweden’s adds to the understanding of the low resources on which the Serbian education system is built (Utrikespolitiska institutet, 2012).

All these geographical aspects are important to the understanding of this study and its results. The tumultuous and difficult landscape of Serbia’s geography (including the historical and cultural senses of geography) motivates the interest of this study. Serbia’s history of conflict and current problematic relations with its closest neighbors is an obstacle in its striving to become a member of EU. The demands from the EU for normalization of Serbia’s relations with Kosovo must be parried with internal strong nationalistic attitudes. Both society and the educational system in Serbia have suffered from the weak economy and social problems; unemployment, poverty and corruption abound. Teachers’ interpretation and teaching about sustainable development is shaped by these spatial conditions, but will also influence these conditions in the future. Education has a great importance for a future sustainable Serbian society.

4 Methodology

This chapter describes the methodological positions of this study, beginning with an outline of the overall research process in chronological order. Next, data collection is discussed and the respondents are presented. Data processing is then explained, including transcriptions and coding. The chapter concludes with a discussion of ethical considerations and criticism of the study's sources.

4.1 The overall research process

The perspective of this project is geographical: it is based on the fundamental geographical idea that place and location matter. The objective is to understand how the geographical context shapes a teacher's concept of sustainable development, and in turn how this view informs their teaching. Deep qualitative interviews have been used to obtain data on how teachers define and teach about sustainable development within their geographical context.

The study is performed as a field study in Serbia. Serbia was selected as area of study because of its interesting context of current and historic events, described in chapter 3 *Area of study*. Results are deduced primarily from intensive interviews with teachers. My eight-week experience of living in the Serbian geographical context further informed the interpretation of these interviews. The interviews were performed during the third and second week of the study and were preceded by interviews and conversation with Serbian citizens and professionals. In the study these participants are referred to as informants, since they contributed largely factual knowledge about teacher education and school organization in Serbia.

Teacher interviews were recorded following the approval of the respondent. The recordings were then transcribed and the transcripts were analyzed using open coding. Each step of the research process is described below in further detail.

4.2 Data collection

Interviews with informants contributed understanding of the Serbian geographical context, (research question A) and were helping to shape the questions used for interviews with respondents. A Geography professor at the University of Belgrade and a former geography student were interviewed to understand the structure of the geography teacher education. Professors Olivera Gajic and Milica Andevski at the faculty of teacher education at University of Novi Sad were interviewed regarding the level of awareness of SD in teacher education and among teachers in Serbia. To comprehend the structure and tradition of the geography teacher education helped the understanding of what knowledge and awareness could be expected from the teachers. This information contributed greatly to the interview guide for teachers, found in appendix 2 in this paper. Informal conversations with ordinary citizens were also useful in obtaining data about the conditions of life in Serbia and perspectives in Serbian society.

From previous research and interviews with informants the guide of questions for respondent interviews were built to answer the research questions. The interview guide is found in appendix 1. The interview guides in both appendices were used as support during the interview process. All questions were not used in each interview; on occasion some questions were excluded to allow for

spontaneous follow up to interviewee responses. Accordingly, the interviews can be considered as semi-structured.

The respondents were reached by the help from my contacts at Serbian universities and their respective contacts. As described earlier the study was limited to geography teachers in primary school years 5-8. The concrete selection of teachers was made much by my contacts in Serbia and aimed at including teachers from different areas. This was made to achieve as large geographical spreading as possible and get a wide range of experiences. During interviews questions were asked about where the teachers had studied and whether they had worked at many schools during their working life. This aimed at understanding the geographical scope of their experiences.

Respondent interviews comprise the lion's share of the results in this study and are used to answer both research questions. Informant interviews contributed data regarding the teachers' working conditions and helped to form the interview questions. As seen in appendix 1 the questions were open ended, allowing respondents free range to describe and explain their experiences. This semi-structure guided the conversations according to a set range of themes and questions, leaving room for the interviewee to develop his/her own thought, often disclosing unanticipated perspectives and data. The set interview material was based on research described previously. The questions were grouped in themes as *teaching* and *the meaning of place*. I asked what factors were shaping the teaching, and also how their teaching was shaped by happenings at the international, national and local level. To discover if Serbian instruction contained ESD, I questioned respondents on if and how they were teaching SD. Respondents were also asked to give a comprehensive picture of their teaching, including essential contents and methods.

Each interview lasted for approximately one hour, a length considered reasonable to claim from the teachers. This method of qualitative interviews is suitable when little or no research exists in the area of study. More quantitative questionnaires and research tools are based on prior findings (Esaiaasson, Gilljam, Oscarsson, & Wägnerud, 2012, s. 252). However, it is also the case that qualitative interviews offer unique research value (Flowerdew and Martin (2005) referring to Silverman (1993) and Burgess (1984)).

“One of the additional strengths of this approach is that it allows respondents to raise issues that the interviewer may not have anticipated. The material generated in this way is rich, detailed and multilayered producing a “deeper picture” than a questionnaire survey” (Flowerdew & Martin, 2005, s. 111).

Though the qualitative design reduces the study's ability to generalize results, the aim of the study is not to be representative but instead to understand individuals. The pool of respondents is not intended as a representative sample, but an illustrative one. The qualitative method is a useful and accessible means for eliciting a variety of possible variables and relevant aspects (Flowerdew & Martin, 2005, ss. 111-112). Testing and generalizing are appropriate to a later stage of research and a second study.

The respondents and the informants were selected by my local contacts. In some cases the contacts were also used as informants. The contact persons were found via researchers at the University of Gothenburg and the Jonkoping University with contacts at Serbian universities. Contacts at the

University of Belgrade, The University of Novi Sad, The University of Nis and the University of Kragujevac assisted in recruiting informants and respondents in support of this project.

All interviews except the one with the respondent Slavisa were conducted with the help of an interpreter. Interpreters were recruited with the assistance of local contacts at the universities. In cities B and C the interpreters were postgraduate students. In general, the interpreters were not known by the teachers prior to the interviews, but in each case a good relation was established.

4.2.1 The respondents

Seven interviews were conducted with eight teachers. One interview was conducted with two teachers and the rest were single interviews. The respondents were drawn from three Serbian cities of various size and location. They were seven female and one male teacher; together they have about one hundred years of teaching experience, between one and twenty years each.

City A – Belgrade, the capital of Serbia.

Alexandra and Biljana work in a school in the capital city of Belgrade. They both studied at the University of Belgrade. Alexandra has worked for eleven years at various schools in Belgrade. Biljana has worked at the same school for seventeen years. The interview with Alexandra and Biljana lasts for a little longer than one hour. It is interpreted by Sandra, a twenty-year old citizen of Belgrade and a personal contact of mine.

City B – A middle sized city in the north of Serbia

Mira took her geography teacher education at the University of Novi Sad. She has worked as teacher for five years at four schools in the city. She is around 35 years old. Her interview is conducted in an office with other people listening, entering the room, and occasionally interrupting the interview. The interview with Mira was interrupted after 45 minutes to allow for a short interview with Dusica. The interview with Mira was then concluded in a different and calmer room.

Dusica is around thirty years old and has been working as teacher for one year. She works at several schools in the city. The interview with Dusica lasted for only twenty minutes, as she needed to leave for another appointment. It is the shortest interview.

The interviews with Mira and Dusica were interpreted by Tamara, a PhD student at the University of Novi Sad who knew Mira personally.

City C – A small town in southern central Serbia

City C houses the faculty of teacher education for a nearby university. The interviews in city C are interpreted by Ivan and Alexandra,; both are PhD students at the faculty.

Slavisa is forty-seven years old and has been working as teacher for twenty years. He received his teacher education in Belgrade. Slavisa is the only teacher who is able to conduct the interview in English. Direct communication between me and Slavisa fostered a positive relation, making Slavisa's interview more conversational than others. Ivan is present for Slavisa's interview.

Biljana is around 55 years old. She was educated at the University of Kragujevac. She has worked as a university teacher of geography, and for the last twenty years she has worked as a geography teacher in schools. She has worked at multiple schools simultaneously but now is employed at only one school.

Ana is in her thirties and has worked as a teacher for eleven years. She received her education in Belgrade. She has been working at the same school since just after her graduation.

Ljiljana also studied in Belgrade. She is about forty-five years old and has worked as a teacher at the same school for sixteen years. Her interview is conducted in the office she shares with a colleague. This colleague takes part in the interview at one point by adding to Ljiljana's response.

4.3 Data processing and analysis

4.3.1 Transcription

All interviews with respondents were recorded with the approval of the respondent. These recordings were transcribed using the free transcription software InqScribe. The transcripts mirror the content of the interviews as closely as possible, including errors or particularities of syntax on the part of respondents. Pauses or thinking noises were not included unless they aided the understanding of the response. In some cases, the meaning of the response is difficult to interpret as intonation and context are lost. In these cases I have added the meaning *[in brackets]* as it was interpreted during the interview and from the recordings. Sandra interpreted the interview with Alexandra and Biljana; since she also speaks Swedish, she sometimes interpreted using a Swedish word. These are written *(in parenthesis)*.

When the respondent talks Serbian with the interpreter or someone else in the room, this is marked in the transcript as *(Speaking Serbian)*. Thus, the transcript indicates the interaction happening in the room during the interview, and marks speech other than that between the interpreter, interviewer and respondent.

The transcriptions and recordings were checked for errors or gaps in translation by Sandra, a native Serbian. Her clarifications were added to the transcripts; overall the quality of the transcripts in reflecting the recordings was very good.

4.3.2 Analysis

During transcription teachers' statements were put down in text and further clarified. The printed transcripts were then analyzed using the holistic model. All statements that aided understanding of the geographical context or teaching of sustainability in Serbia were notated in the margin referring to the holistic model and its parts. Significant concepts from the research context and frame of reference were employed in this process. The transcripts were titled with thematic headlines in the margins to aid orientation and provide an overview of the content.

This way of coding qualitative materials by applying "theoretical memos" referring to the frame of reference, is described by Martin and Flowerdew (Flowerdew & Martin, 2005, s. 222). I also applied a more open approach to the material as identifying and grouping statements into categories not previously identified. These categories made it easier finding what the respondents talked about and

how. It also allowed me to observe more concrete factors and aspects important to the geographical context and its shaping of teaching. These categories were then added to single statements and longer passages in the interviews. This procedure of letting the material speak for itself and creating new categories is described by Flowerdew and Martin (2005) as “open coding”.

The categories and theoretical memos specifying connections to the frame of reference were then transferred to post-it notes. Every note referenced a teacher and page number in the transcript. All the notes were then categorized according to the holistic model. Teaching contents and methods of teaching geography and SD were made separate groups. These groups of notes were used to order the results of the study and build the running text. Finally, the transcripts were checked again against the running text to ensure that no content was missed or misinterpreted.

4.4 Ethical considerations

The issue of anonymity for respondents and informants was addressed during data collection and the writing of the results. All respondents agreed to be recorded, but the question of anonymity was not raised. One respondent asked who would listen to the recordings. I assured only I would hear them as I experienced another answer might constrain that respondent's honesty. I considered this a promise of anonymity in that case.

As the teachers were not offered anonymity, the study follows a precautionary principle. The results are anonymous in that cities are described with vague formulations. Only city A (Belgrade) is named, since this city is large enough to prevent identification on basis of the information given. The use of this principle is a weakness of the study, since information about the cities is relevant to the geographical context. However, the study considers this weakness subordinate to its respect for the respondents.

The interviews with informants are treated differently, since they are comprised of factual information (Esaïsson, Gilljam, Oscarsson, & Wägnerud, 2012). The information collected from these interviews is not of a delicate nature. Informants participated in the study as professionals and professors, and accordingly they are given full credit for their contributions.

At an early stage of the study, the question was raised whether the teachers would understand or relate to the notion of sustainable development. The question is pertinent, as SD is a new concept in the Serbian society. This proved to be a legitimate concern. The teachers often seemed confused and uncertain when discussing SD. In the aftermath of the study it is relevant to ask whether the notion should have been mentioned at all. Questions could have focused more on the defined characteristics of ESD or the general ideas of long-term sustainability. However, this approach would have been problematic in other ways. Results based on the researcher's personal, conceptual definitions may have lost legitimacy. Then, the aim of the study could not justly be said to contain the notion of sustainable development.

4.5 Criticism of sources

Several aspects can be raised as critics on the sources used for this study. Many of them are connected to different conditions depending on the fact that the study was made in a different country than my own, limited resources and lack of knowledge of the Serbian language.

The selection of both teachers and other informants for my interviews were to a large extent made by my contacts in Serbia. My contacts were professors and teachers at different Serbian universities (University of Belgrade, University of Novi Sad, University of Nis, University of Kragujevac) with pedagogical faculty and teacher education. I also had more informal contacts; regular people in Belgrade helping me understand the general Serbian context. Since I at the work's beginning did not have any direct contacts with geography teachers I had to rely on the contacts I had at different universities in Serbia and their possibilities to recruit respondents and informants for me. In a way the selection was by that randomized but there is also a risk of their (conscious or not) intentions and attitudes affecting their selection. Since they were academics and in different ways involved in geography and teacher education at university, they have probably only had access to educated teachers. Teachers without formal education or relation to a university and/or from some reason will not take part, do fall off.

For parts of my study I have been depending on secondary sources and these were selected from a range of written material in English and Swedish. To compensate for the lacking access to research written in Serbian, interviews have been made with people with knowledge about the relevant matters. The Serbian curriculum is only available in Serbian so free online translation services have been used to make parts of its content understandable. This is not an optimal solution but the best possible due to the circumstances. Reliability would have been better if I myself could have read documents as the curriculum in full version, but since a high-quality translation would have been too expensive of time and money, secondary materials were the next best source available (Esaïsson, Gilljam, Oscarsson, & Wägnerud, 2012, s. 283).

I also cannot ignore the risk of myself as researcher affecting or hampering my data or results. The fact that I am coming from a different country than the one I am studying can bring with it both potential risks and opportunities. This is something always relevant but especially when conducting research in a different geographical context. Flowerdew and Martin put it like this:

“(...) it is important to reflect on who you are and how your own identity will shape the interactions that you have with others. (...) recognizing your positionality and being reflexive” (Flowerdew & Martin, 2005, s. 113).

When making research in a country which is also a developing country, as a researcher I must “be aware of [my] privileged position in terms of wealth, education and so on, in relation to those [I] will be working with” (Flowerdew & Martin, 2005, s. 114). In a country working hard for entering the European Union I as a citizen of one of the member states, might bring with me a context of power. This uneven relation of power might also bring with it a risk of tendency with those interviewed. If the interviewed (consciously or not) suspect me as interviewer to be an inspector there to control them or just as hierarchically superior the answers might be corrected and adjusted to what they think I want to hear (Esaïsson, Gilljam, Oscarsson, & Wägnerud, 2012, s. 285).

The issue of me as researcher affecting my research is difficult to eliminate totally. I have though tried to be aware of my own identity and what it carries to people I meet. By identifying my own expectations before starting the field study and writing a diary during my stay I tried to be aware of my attitudes. By being open-minded and humble to the people I met I also tried to communicate respectfulness and equality.

My use of interpreter can bring positive and negative consequences to the interviewing situation. There can be linguistic misunderstandings and misinterpretations and something which to the interpreter might seem uninteresting enough not to translate could be very important material for the researcher. The translator could though also work as a guarantee of the researcher's good intentions and insurance to the respondent of a correct understanding (Flowerdew & Martin, 2005, s. 126). To minimize these risks, all transcripts were checked versus the recordings by a native speaking Serbian for errors and misunderstandings.

5 Results

The results will answer the questions posed by this study, as described on page 2 in this paper. To answer the questions as clearly as possible the results are outlined according to the questions. First the geographical context and its shaping factors is described. Then the teachers' ideas and teaching of sustainable development is accounted for. These results are continuously related to each other as parts of the holistic model.

This structure aims at giving a good picture of the geographical context while also explaining its importance in the process of shaping teachers and teaching via the holistic model.

5.1 The Serbian geographical context

In many cases the teachers had difficulties understanding my questions about what shaped their teaching. Mostly they gave answers that did not necessarily answer the questions directly. However, in their stories about their profession and lives as teachers and teaching of geography, several important factors regarding their geographical context can be found.

The following text is structured according to the parts of the holistic model. Starting at the non-material parts and then describing the physical parts. There are sliding scales between the different parts and much of what the teachers' feedback as shaping factors do connect to more than one part. I aim to describe these connections for each factor in order to treat this complexity in a comprehensible way.

5.1.1 Values & ideologies in the Serbian society

The values and ideas in a society are an important part of everyday life for all its citizens; they form the ground for decisions and behavior on all spatial levels, from government to household. The system of values and ideas also shape every teacher. Since these systems are often subtle and always a natural part of our society, we may not be aware of how they shape us and our context.

The teachers interviewed witness to how values in Serbia have changed recently, particularly in terms of how education and school have lost value and status. The change is noticeable to the teachers personally, as their profession has lost status and authority in society. This change connects to Serbia's recent economical struggles and social problems. A lack of belief in the future and lack of trust in what education can do to change it are consequences of the weak economy (Ljiljana, 2013). The lower status of teachers has shaped working conditions in the schools; local governments and school boards do not put trust in teachers as professionals, but rather listen to the feedback of students and parents, giving them too much influence over school and teaching (Alexandra & Biljana, 2013) (Ljiljana, 2013). This context is also shaped by the traditional Serbian way of living. The parents of the students often have values that counteract the more open minded mentality the teachers try to foster with the students (Ljiljana, 2013). Accordingly, parents shape and constrain the teachers' work. However, the teachers also strongly express that value for the curriculum and its structure influences their teaching. As one teacher said it straightforwardly, "Curriculum is clear, and if you are a good teacher you will be a good practicer [practitioner] of that curriculum" (Slavisa, 2013, s. 10).

One teacher noted that knowledge of other countries' educational and school systems, can contribute perspectives and a more open mind regarding the Serbian system. This knowledge can also be important to see what values and ideas are active in the Serbian context and change them (Ljiljana, 2013). Here, the teacher indicates the importance of place and geographical context in shaping teaching, and how an understanding of other contexts can contribute to a better understanding, as well as the possibility to change the own situation.

Several teachers expressed profound mistrust in the government's policy and decisions in the area of education. The ministry of education is said to be full of people who never set foot in school after their own basic education, who have very weak connections to the teachers' reality (Slavisa, 2013) (Ljiljana, 2013). The teachers also related that their own opinions and efforts to contribute to policy making are not considered in reforms (Ljiljana, 2013).

5.1.2 Serbian rules and regulations

The strongest and most important regulation in shaping teachers' work is the curriculum set by the government and the ministry of education. The curriculum as shaping factor will be more closely treated later, but here we consider one aspect of its importance, its status as a strong regulator of teaching. The regulation of the school system in Serbia is strict and highly centralized, producing vast consequences when leadership is poor (Slavisa, 2013). These regulations are strengthened by classroom inspections to make sure the curriculum is followed (Ljiljana, 2013). This system, together with the lack of interest for teachers' feedback, gives a picture of one-way communication and strong hierarchy. Strong horizontal connections are at work here and constitute an important shaping factor.

There is also an aspect of time influencing regulations. According to teachers, the curriculum has been the same for a long time (Alexandra & Biljana, 2013) (Slavisa, 2013). The notion of sustainable development is rather new and has not had time to trickle down to teachers' minds or the curriculum, to any great extent (Alexandra & Biljana, 2013). Considering the importance of the curriculum, the lack of content focusing on sustainability is an important constraint.

The curriculum is by far the factor mostly referred to by the teachers. It is mentioned and spoken much of by all the teachers. The curriculum regulates what themes and content should be taught and in what order. It prescribes the content of every lesson of geography from the fifth to the eighth grade. With its structure it answers the didactical question of 'what should be taught, why and when'. The question of 'why' is often answered with 'because the curriculum says so'. This exchange gives a picture of the regulating power of the curriculum and what consequences it has as a factor for the geographical context, including shaping teachers and their teaching. The curriculum is a tool for and a proof of the strong horizontal connection between teacher and regulator. The curriculum is also an expression of the societal attitudes and values that are recreated through the curriculum.

My questions regarding content and focus in their teaching (if it is physical or human geography and if the local, national or international level is dominating) elicited the answer that it depends on the grade, as the curriculum prescribes different content and focus for different grades and themes (Alexandra & Biljana, 2013) (Ana, 2013) (Biljana, 2013) (Dusica, 2013) (Ljiljana, 2013) (Mira, 2013) (Slavisa, 2013)). Content or aspects not included in the curriculum have little chance to make it to the classroom teaching, but this can depend on individual teachers' knowledge and interest (Alexandra &

Biljana, 2013) (Biljana, 2013) (Slavisa, 2013). Most of the teachers also say they do not teach particularly about or for sustainable development.

The curriculum is a resource to many, but also a restriction in terms of its rigid structure. Alexandra and Biljana note that they do not have the possibilities to teach in the way they have found other teachers doing in other parts of Europe (Alexandra & Biljana, 2013). Biljana explains that the curriculum only allows her to focus or diverge within certain themes (Biljana, 2013). The fact that the notion or ideas of sustainable development or ESD are not present in the curriculum at all puts up restrictions for the possibility to teach about it (Ana, 2013) (Mira, 2013) (Slavisa, 2013). Mira adds that there are some classes on environmental protection and certain aspects of environmental problems are treated, but these are very few (Mira, 2013). The curriculum also presents difficulties for the teacher in that it is very comprehensive and demands high standards for knowledge of theoretical details, rather than practical understanding. This content is difficult to make accessible, especially for younger students (Alexandra & Biljana, 2013). Through its great influence, the curriculum must be considered an authority constraint (Gren & Hallin, 2003, s. 282) limiting teachers' activities.

Serbia's possible membership in the EU is a shaping factor on several structural levels. This possibility is already shaping the regulations of the Serbian school system, but it also has the potential to shape what is valued as a good example. The teachers mention membership in the EU as something positive for Serbian society in general, and especially for the educational system (Alexandra & Biljana, 2013) (Biljana, 2013). According to Alexandra and Biljana, seminars for teachers were introduced on the subject of sustainable development after the discussions with the EU began, and awareness has been growing since then (Alexandra & Biljana, 2013). Another consequence of possible membership is the great interest in the results of PISA tests³. Serbian students have had poor results in these tests, resulting in criticism of teachers and students from the ministry of education (Slavisa, 2013). Alexandra and Biljana each created new materials built on "the new European standards" to better prepare their students for the PISA-tests (Alexandra & Biljana, 2013). Slavisa on the other hand express a more cautious attitude to the PISA tests, questioning whether they can be used to measure and compare the knowledge of students in so many countries with different educational systems and curricula. In the national student competition of geography Slavisa has had great success,; Serbian students also demonstrate a high level of knowledge in these competitions. This contrasts with the students' bad results in the PISA tests, raising the question of the legitimacy of the PISA tests as measure of knowledge (Slavisa, 2013). Slavisa disagrees with the ministry blaming the teachers for students' poor PISA results, arguing, "What we learn the children is not depending on us. The opposite of that (...) there is not problem in kids and teachers, but in some other things. In the ministry probably" (Slavisa, 2013).

These findings show that the strong authority constraint of the curriculum is questioned from several directions, both by teachers and perhaps indirectly by the results of the PISA tests. Therefore, the EU can be seen as an opportunity, bringing new influences and skills to the Serbian educational system.

³ The Program for International Student Assessment (PISA) is an international survey which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students (OECD).

5.1.3 Activities' organization

Activities and how they are organized are important aspects of the holistic model. The teachers' working conditions are an important factor of the geographical context. A subject teacher in Serbia only teaches one subject and has studied the subject for several years in university. Every class has two lessons of geography every week, with the exception of fifth graders who only have one class per week. A geography teacher working at a large school with fifth to eighth grade (the grades where subject teachers do their teaching) may work full time at that school. Some of the interviewed teachers are working at several schools to reach full time (Dusica, 2013) (Mira, 2013). Consequently, these teachers are the only ones working full time in their subjects. Some of the teachers also mention that they lack the incentive to perform better as teachers because of low salaries. These circumstances shape teachers' conditions, showing the constraints of their geographical context.

Several teachers talk of external agents or stakeholders taking part in school activities and consequently shaping the geographical context. Non-governmental organizations (NGOs) are the most common outside influencers in the area of sustainable development and environmental issues. The teachers credit NGOs as important in creating awareness about environmental issues, and as being the only entities pursuing campaigns to protect the environment (Alexandra & Biljana, 2013). Dusica notes that she gained her interest in and knowledge about the environment and sustainability from her engagement with an NGO during her university studies. This experience shaped her geographical context by adding to the knowledge, values and attitudes she brought to her future profession (Dusica, 2013).

Teachers also name NGOs as agents in a more school-specific spatial context, as organizers of projects for collecting recycling material. One teacher had been part of a competition organized by the CocaCola Company for the recycling of metal cans (Ana, 2013). Mira started teaching about environmental issues after taking part in a seminar organized by the international organization *Regional Environmental Center*; she uses short films and quizzes from the seminar in her teaching. Mira notes that she did not teach or have any interest in environmental issues before this seminar (Mira, 2013). Slavisa talks about seminars he has attended organized by publishers of school books who advertise their materials with teachers. These seminars are welcomed in Serbia since there are few resources for other education for teachers (Slavisa, 2013). Ana mentioned a cooperation she had had with a local amateur society of astronomers giving a lecture at school after a great meteor hit Russia in the winter of 2013. That was an extracurricular activity, since they could not break the curriculum to allow for the lecture during school (Ana, 2013).

Co-operation or the lack thereof with the university also shapes the teachers' contexts. Alexandra and Biljana explain that their teaching is inspired by the student teachers who are sent to their classes for educational practice. The student teachers bring in new methods and perspectives on teaching, especially on the topic of sustainable development. Alexandra and Biljana also have good contacts with a professor of geography at the university who is helping them (Alexandra & Biljana, 2013). Slavisa strengthens this picture of the good influence the university can have on school teaching. He notes that class teachers in his town "are much better organized" and have close contacts with the university, since the faculty for the education of class teachers is located in his town; Slavisa talks about this nearness as something very positive (Slavisa, 2013).

However, the teachers also point out that the lack of structure in their organizations prevents these connections. For example, there are no demands for practical work during teacher education, which affects both students and teachers negatively. There are also bad relations between the university and researchers on one side, and schools and class teachers on the other (Alexandra & Biljana, 2013). The benefits of close relations between schools and universities show that it is important for good connections between different levels of the educational system to exist.

5.1.4 State and awareness of the Serbian population

The previous section of this paper has discussed the non material aspects. Now, as we take a closer look at the more concrete parts of the holistic model, we must remember that they are constantly under the influence of the values, rules and organizational limits we have already discussed. The population and its values are closely connected and shape and reshape each other continuously. The population in this case is foremost a faction of society with a general opinion on issues of sustainable development that shape the geographical context.

As mentioned earlier, the notion sustainable development is rather new in the Serbian society and has yet to reach general opinion and awareness (Mira, 2013). According to Alexandra and Biljana there is knowledge that the problem of sustainability exists, but little understanding or awareness of how it can be solved (Alexandra & Biljana, 2013). This also applies to the state of books and teaching materials on the subject. Mira adds that social problems and lack of knowledge prevent development and change for the better. Instead it breeds a negative cycle of destructive thinking and lack of hope amongst the population (Mira, 2013).

This lack of awareness takes very concrete manifestations when parents of children do not want to let their children take part in cleaning of common areas, arranged by schools or teachers. The lack of awareness by the parents shapes the teachers and their spatial possibilities to influence the students (Alexandra & Biljana, 2013) (Ljiljana, 2013).

The teachers talk of how social aspects are important both directly and indirectly. To a large extent social conditions shape both their teaching and the setting of their teaching. Biljana talks about how Serbia's spatial location has shaped history and development of the region and its inhabitants, something which has had great influence on modern life and society and thereby also on geographical context.

“Especially on this area we had a lot of wars and a lot of conquerors and a lot of big empires. Because we were on the crossroad of two empires: the Roman and the Ottoman, and two continents also. So we are in a bit of a crossroad of two big cultures. Everybody who wanted to rule the world, he had to rule the roads. So we are in a road” (Biljana, 2013).

Different cultures, languages and religions within the country are an important part of explanation to many previous and current events of the Serbian society and make an important starting point for Biljana's teaching of geography (Biljana, 2013). This particular statement also includes the geographical questions of who, where and when and the importance of how the answers of those questions vary in time and space.

Wars during the nineties had both social and economical consequences as it took money from the educational system, something it still suffers from. And weak economy today also forces the government to make priorities and leave schools without sufficient resources. The teachers also state that the history and poverty has shaped social conditions, culture and values of society today (Alexandra & Biljana, 2013) (Ljiljana, 2013). These conditions are proof of how both vertical and horizontal connections are important to shape geographical context.

A very concrete example of these connections is given by Biljana: She is herself constantly worried about her economical situation, with low salary and children who study and need economical support for their own better future. The parents of her students are in the same situation or worse since many are unemployed and the students in her classes are burdened with these problems. Some of them are very poor and hungry and do not have the strength or hope to believe in the future. Of course these conditions of her own and her students' situation have great impact on her geographical context in general and the actual teaching and classroom situations in particular. Lack of basic resources such as food and safety is in this case putting up *capability constraints* to her teaching. Biljana also concludes that basic needs must be satisfied before you can think of sustainable development (Biljana, 2013).

As a consequence of the difficult situation in Serbia, an idea is spreading that the grass is greener on the other side of the fence and several young people are now leaving the country with hopes of an easier life somewhere else. The lack of belief in a better future is then strengthened further as the young ones are leaving (Biljana, 2013) and sustainability seems even more distant. Both Mira and Ljiljana adds to the picture of how growing social problems have weakened the society's interest in environmental issues, as parents do not have time or reason to teach their children about a sustainable behavior in their everyday life (Ljiljana, 2013) (Mira, 2013).

The picture these teachers are painting is a very unsustainable situation including both economical, environmental and social aspects. A concrete example of how these aspects are cooperating to create a local situation also shaping the local geographical context is given by Mira. A local factory is polluting the water but people will not speak up against it because many of them are working at the factory and are afraid of losing their jobs (Mira, 2013).

5.1.5 Resources and constraints to Serbian teachers

To the fifth part we connect physical resources, access and absence of the same resulting in *constraints*. But together with the physical resources the teachers stress their own knowledge and time as important resources and these are important factors of shaping their geographical context.

One of the most mentioned constraints in the interviews is the lack of reliable structures. The teachers talk of lacking structures for securing sufficient resources for good education, the observance of the laws particularly concerning environmental protection and incentives such as adequate salaries for teachers to do a good job (Mira, 2013) (Slavisa, 2013). On the question about what resources they do have for their work some examples mentioned are whiteboards, markers, wall maps and atlases for the students (Ana, 2013). Alexandra has a smart board in her classroom and she points out that this is very unique in Serbia (Alexandra & Biljana, 2013). Some of the teachers do have access to a computer at work - mostly shared with other colleagues - while one only has

access at home. The access to computers and internet is the most frequently mentioned lack of physical resources. One example is Biljana who has access to a classroom of thirty computers for her students when she has the need for it. I understand though that it can not be used very often since they are thirty five teachers and five hundred students at her school. Biljana though, is not entirely positive about computers and the internet. She points out how internet connected phones in classrooms can steal attention from the teacher and have a negative impact on teaching as well (Biljana, 2013). When it comes to teaching about sustainable development the authority constraint of the curriculum was mentioned earlier, but also capability constraints in the shape of lacking books and teaching material on these matters are important (Alexandra & Biljana, 2013) (Ana, 2013) (Mira, 2013).

The lack of physical resources, knowledge and time are also frequently brought up by the teachers (Biljana, 2013). Alexandra and Biljana talk of how they teach about sustainable development because they got inspired and realized that students are interested in these issues, and they are themselves interested in making their subject interesting to their students. But they also point out that it is up to the individual teacher to teach about these things, since the structures are lacking (Alexandra & Biljana, 2013). Slavisa and Biljana also think that knowledge of the issue is very low (Biljana, 2013) (Slavisa, 2013). Slavisa also speaks about his lacking knowledge and access to the international theoretical discussion about geography and geography teaching and that he would like to know more about that (Slavisa, 2013).

Since no one knows everything and sustainable development is a new notion in Serbia I ask about the teachers' possibilities to gain new knowledge and take part in further education as teachers. Their abilities to take part in such education are rather limited. Seminars are supplied by the university but someone must pay and schools and local governments are reluctant or do not have the money to do so. Teachers can pay for themselves but with a low salary that is not always possible. There are also spatial aspects of nearness since seminars are organized at schools if there are sufficient numbers of interested teachers in the area, otherwise they will be held at the university and travelling could be far and expensive. According to Ana, there are no seminars on the topic of sustainable development (Alexandra & Biljana, 2013) (Ana, 2013) (Slavisa, 2013).

The lacking knowledge and understanding of sustainable development is shown in their definitions and interpretation of the notion. The teachers generally find it difficult to define. To Mira, the idea of sustainability is only about environment, but later she also says that she does not know anything about the social and economical aspects but would like to learn (Mira, 2013). Biljana understands the idea of the notion but she can not explain it in her own words (Biljana, 2013). Dusica define it "Care for the future" and add "what would the world look like if we do not care for it now" and by that she puts a perspective of space and time on the issue (Dusica, 2013). Slavisa, in examples from his own teaching, talks about cultural, social, economical and environmental aspects, but says he does not teach specifically on sustainable development (Slavisa, 2013). Ana says she does not teach it at all, but she got some knowledge about it from TV and internet even though she is not particularly interested (Ana, 2013).

Another more abstract resource is time, something which is closely connected to the strict regulations of the curriculum. Dusica says that if she only had more time she would be able to

develop her teaching on aspects of sustainable development, and to Slavisa there is not even time enough to fulfill the demands of the curriculum (Biljana, 2013) (Dusica, 2013) (Slavisa, 2013).

In the holistic model, nature is included in the part of resources and physical objects. In this case it describes how nature and physical surroundings shape the geographical context of the teachers' work. Many of the teachers interpret sustainable development mainly from the ecological aspect and what they can learn from their local natural surroundings and what it may offer in terms of good examples of how to treat or not treat the environment.

As examples of teaching about sustainable development, several teachers talk of local environmental problems such as pollution of water and air, garbage and pesticides (Alexandra & Biljana, 2013) (Ljiljana, 2013). Mira and Dusica who live in a fertile and agricultural part of Serbia also talk about the production and protection of food and how irrigation, pesticides and chemicals are threatening their natural environment (Dusica, 2013) (Mira, 2013). This shows how the local setting is shaping geographical context.

5.1.6 Summarizing the Serbian geographical context

Let us sum up the factors shaping the geographical context.

- Social and economical problems: Has led to weaker value of education and loss of status for teachers. Adhering to the curriculum is highly valued and there is belief in the government's competence.
- The curriculum: Is highly centralized and part of a strong hierarchy and strong horizontal connections. Has been constant for a long time and does not contain much on SD but some on environmental issues. Focus on detailed theoretical knowledge.
- Europe and EU: Shape regulations and values, has also brought PISA tests with new standards and measurements of knowledge.
- Working conditions: Many schools and few colleagues.
- External agents: NGOs working for awareness, publishers of school materials and companies are shaping agents. Universities: Connections with professors and students inspire and bring knowledge. Structures for such connections are lacking.
- SD in Serbian society: As a new concept, there is low awareness and social problems restrain development.
- Social conditions: History has shaped Serbian cultural development and current society. War has brought economical and social problems shaping culture and values. Brings general lack of belief in the future.
- Physical and abstract resources: Resources and restraints are different sides of the same coin. Computers and internet access frequently lacking. Knowledge and interest are important resources. Defining SD is difficult and there is limited access to further education. More time is needed to cover the curriculum and to develop teaching. Nature offer local examples of environmental problems used for teaching.

With this in mind, let us take a closer look at the teaching of geography and sustainable development as projects in the holistic model.

5.2 The teaching project

In the holistic model showed on page 10 the activity is in the centre of the illustration. In this particular case and study, the activity consists of teaching sustainable development in geography teaching. Geography teaching is the bigger main project and teaching sustainable development is a subproject. Geography teaching will as such be accounted for firstly. Essential contents and methods of geography teaching are described to understand the context. Teaching of sustainable development is then described in terms of content, methods and general conditions.

5.2.1 Geography teaching shaped in the Serbian geographical context

A general observation from the interviews is that the teachers do not to any greater extent discuss their teaching from a meta perspective but are focused on what they teach in what grade and what the curriculum is saying. The horizontal links to hierarchical superior elements such as the curriculum consequently seem to have greater influence in shaping teaching than vertical links to spatial elements at the same level. There also seems to be an overwhelming dominance of theoretical knowledge in teaching, something which is confirmed explicitly by Slavisa (Slavisa, 2013).

The high demands of the curriculum has made Alexandra and Biljana focus on the aspects of physical geography with their students since they consider human geography too complicated and difficult, especially in the early years (Alexandra & Biljana, 2013). Mira focuses on local and national levels in her teaching particularly when teaching about environmental issues and protection, but it also depends on what is stated in the curriculum (Mira, 2013). Some of the teachers talk of how they refer their own teaching to current geographical events on the global scale. The earthquake and following tsunami outside the coast of Japan in 2011 is one example. They are then discussing cause and effect and possible future consequences (Alexandra & Biljana, 2013) (Biljana, 2013).

Ljiljana speaks specifically about how local circumstances shape her teaching situation and how she can refer to different and similar phenomena in other places to create larger perspectives. One example is her teaching about Muslim culture in comparison to the local majority of Christian orthodox culture. She also talks about how her own teaching is shaped by things in her and the students' everyday life; something happened at home, in school or in the street on the way to school (Ljiljana, 2013). Teaching is also shaped by the number of students and classes and by the students' previous knowledge and level (Ana, 2013) (Slavisa, 2013).

Slavisa's teaching about geographical places is always starting with the location and positioning of the area followed by the physical characteristics of the area. The specific character of the human and social geography of the place can then be discussed starting from there (Slavisa, 2013). Mira is making a connection between the importance of money to maintain the protection of the environment and the rule of law and how that in its turn contributes to social awareness and shape reality. And since "that is our reality" and reality is what she is teaching about, those things influence her teaching (Mira, 2013).

To find out what is specific for geography teaching and sustainable development in Serbia, I asked the teachers about how their teaching would be different if they were working in another country. By asking about what Serbia is not, I was hoping to find what Serbia is. Some specific answers were that in a different country they would have more autonomy as teachers and more resources such as more

and better didactical materials and higher salaries. But a different educational system, mentality and more open-minded approach was also mentioned as expected differences (Ana, 2013) (Ljiljana, 2013). These answers confirm the picture of the geographical context and its shaping factors that have been described earlier in this text.

5.2.2 Essential content of Serbian geography teaching

To understand how geography as a school subject is interpreted and taught in Serbia, I asked the teachers about what - according to them – was essential content and knowledge for their students to learn. Some of the teachers first answered that it depends, since the curriculum prescribes different content for every grade (Dusica, 2013) (Ljiljana, 2013). When asking further about their own opinion of what is most central for students to learn during their four years of geography education, basic geographical knowledge is a common answer (Ljiljana, 2013) (Slavisa, 2013). What is basic knowledge seems to be influenced by the geographic context and most of all by the curriculum. More concrete answers about what is essential concern the ability to read and understand the map. The map is both essential knowledge but also referred to as an important tool for future learning and understanding of geography and real world phenomena (Alexandra & Biljana, 2013) (Mira, 2013) (Slavisa, 2013).

Alexandra and Biljana also state that because of the comprehensive and detailed curriculum it's important to teach their students an ability to sort out what's most important from a source and to relate this to reality. They also seem to teach some criticism of sources to their students (Alexandra & Biljana, 2013). Ana talk of teaching her students to love the subject by bringing it closer to them and that learning the content is then much easier (Ana, 2013). Slavisa and Ljiljana also talk of the importance to teach important cultural values and the mission as a teacher to also be as an extra parent and contribute to the students' upbringing. Biljana also stresses the importance of knowledge about Serbia and understanding of their own society and by that adding a perspective of closeness (Biljana, 2013) (Slavisa, 2013).

5.2.3 Methods in Serbian geography teaching

To understand in what teaching context ESD in Serbia is taking place we are going to take a closer look at what methods are used in geography teaching in general. This also adds an understanding of the teaching tradition in which teaching for sustainable development is prevailing.

Alexandra and Biljana teach by dialogue with the students and use blank maps and written reports to evaluate knowledge (Alexandra & Biljana, 2013). Slavisa teaches by asking questions and involving his students in his teaching, and continuously tries to make the content understandable by summing up. He also emphasizes that his teaching is not a one man show and that his students have to think by themselves. He does not believe that teaching methods are shaped by a specific place but vary only depending on the content (Slavisa, 2013). Mira is using short movies and quizzes from a CD she got at a seminar about environmental issues, which had an important influence on her teaching (Mira, 2013). Ana is using active learning and tries to individualize her teaching by having her students working in smaller groups with problem solving to reduce passive listening and develop students' own thinking (Ana, 2013). Ljiljana would also like to activate her students, use more collaborating and be able to make more excursions with her students. But lack of time and money and too large classes are stopping her. Her excursion would involve physical and cultural geography, ecological and social aspects (Ljiljana, 2013). Alexandra and Biljana do make excursions, for example to national

parks where they talk about pollution and how the situation could be changed. Their perspective is a practical ecological one but also contains elements of social aspects and sustainable development (Alexandra & Biljana, 2013).

5.2.4 Teaching for sustainable development in Serbia

In the Serbian educational system there is no structural presence of perspectives of sustainable development in geography teaching. The wording of sustainable development as a general objective in the reform of 2004 has not trickled down into the curriculum and the teachers. As we have seen the curriculum is of great importance and with its rigidity it strictly regulates the content of every lesson, more or less. As the structures do not put any demands on sustainable development as a part of teaching, it is generally absent (Alexandra & Biljana, 2013) (Slavisa, 2013). To include features of sustainability in their teaching is up to every individual teacher at those themes in the curriculum where it can be applied. Such initiatives also require knowledge, will and interest (Alexandra & Biljana, 2013) (Mira, 2013) (Slavisa, 2013).

Only two teachers state that they teach about sustainable development. Alexandra and Biljana who include sustainable development in several areas of their teaching claim it to be an integrated part of every lesson. But they also point out that they are relatively unique in this matter and teachers in general in Serbia do not include sustainable development in their teaching (Alexandra & Biljana, 2013). This is partly explained by the strong horizontal connections within the hierarchy of regulations, from the curriculum to the teachers. This power is exercised and expressed by the importance of the curriculum as regulator (Dusica, 2013).

Alexandra and Biljana's teaching on sustainability is inspired and aided by their connections with the university: an inspiring professor and teacher students from the geography department (Alexandra & Biljana, 2013). They are a positive example to confirm what was said earlier about the importance of an individual teacher's knowledge, will and interest on sustainability to teach it to some greater extent. They also confirm that they have resources which are of great importance to their teaching. Mira is another example of the importance of knowledge and interest; the knowledge she gained at a seminar influenced her teaching and was the trigger for her to start talking about environmental issues and problems in class. This material also has a great ongoing impact as she uses it in her teaching by showing short films and discussing current environmental problems (Mira, 2013).

Biljana speaks indirectly about teaching for sustainable development. She argues for the teachers' importance in creating belief in the future with her students and opening their eyes to the world. By inspiring her students to future travel she hopes to make her students believe in a better future where they will have the possibility to travel the world. She adds a perspective of time and future to her teaching and what purposes it might serve for the sustainable development of the students not just today but tomorrow (Biljana, 2013).

5.2.5 Contents of teaching for sustainable development

In examples given by the interviewed teachers on their education for sustainable development, there is a focus on ecological aspects of sustainability adapted on environmental problems and threats. The ecological focus makes it a natural perspective or content of physical geography when water, atmosphere and soils are dealt with, and when spatial focus is on Serbia.

Ljiljana exemplifies her teaching of sustainable development with teaching about problems of garbage, and harmful water use connected to the industry. According to Ljiljana, aspects of environmental issues are more treated in curriculum for kindergarten and younger years (Ljiljana, 2013). Mira also places focus on ecological issues. But, when speaking of how money and social welfare in society may result in better protection of the environment and more awareness of environmental issues within the population, she adds a social and economical perspective to the issue. It is though not clear whether these aspects are also found in her teaching (Mira, 2013). Dusica says that she only teaches about environmental aspects of sustainable development and describes it as being about: “How to protect the environment for the future” (Dusica, 2013). She teaches these issues in all grades and makes horizontal and vertical connections by relating the issues to local, national and global levels of space (Dusica, 2013).

The threat to the Serbian water and rivers is a frequently brought up environmental problem during the interviews. Alexandra and Biljana but also Mira refer to a film they have shown their students called *Sad Morava*. (The title is a game of words since the real name of the river in Serbian is Usna Morava meaning South Morava. The title of the film is Tusna Morava, meaning Sad Morava.) The film is about the heavily polluted river in southern Serbia and how it is cleaned from trash only to be back in the same bad condition a year later. The film was followed by a discussion with the students about how and why this could happen and what should be done to prevent this from happening (Alexandra & Biljana, 2013) (Mira, 2013). Another example being used in a similar way is the Borsko Lake in east Serbia, polluted to death by nearby copper mining industries (Alexandra & Biljana, 2013). Mira also talk about the Danube and why it is a valuable natural resource and that it must be protected. She also adds a global perspective when talking about the lack of water on many places on earth and that the use of water must be limited for future availability (Mira, 2013).

These examples show how environmental problems are common starting points for teaching on issues of sustainability. The teachers add perspectives of global spatial differences, time and development and teach some action competence (explained and discussed on page 5 in this paper) in relation to environmental issues. Mira speaks of ecological problems with social or economical aspects and Slavisa also include both social ecological and economical aspects in his teaching (Mira, 2013) (Slavisa, 2013). Also Ana describes contents of her teaching in terms of culture, tourism, population, industry, cities and villages (Ana, 2013). This is content traditionally involving ecological, economical and social aspects.

Biljana uses examples of environmental problems of garbage, pollution of air and water, chemicals in agriculture and industries from both social and economical aspects. She also seems to teach some action competence by talking of how to behave if coming into contact with these things “What to do and what not to do”. She refers to the importance of speaking of these things in relation to international conditions since many students have international perspectives with relatives in and knowledge about other countries (Biljana, 2013). By doing so she is adding vertical links and a global perspective. Slavisa says he only speaks of sustainable development indirectly when talking of the economical value of natural resources and how they can influence and push economical development. He also aims to give his students a wider perspective and by teaching them about other countries and similar situations, helping them to work for a more sustainable development in the future (Slavisa, 2013).

The examples above illustrate how teachers include physical and human geography in their teaching and how mainly ecological issues are used as starting point to also include social and economical aspects. Some teachers include longer time perspectives when also when speaking about the future in relation to these environmental issues and add a spatial scale when relating them to other places and a on global level.

5.2.6 When to teach for sustainable development

Considering the educational program being 241 pages whereof 150 are used for regulating teaching, it is clear that it has a considerable influence over teaching and what is being taught. The Serbian curriculum regulates what to teach and when, structured on grade from fifth to eighth and for every lesson. In fifth grade, every class has one lesson per week so there are about 36 lessons on a full year. In the other grades, every class has two lessons every week which sums up to about 72 lessons in a year (Serbian Ministry of Education, 2011/12, ss. 16, 51, 94, 128). For an example of the structure an extract of the curriculum for fifth grade geography is found in appendix 3, page 48.

Fifth grade is the first year of pure geographical studies for the students and is focused on establishing basic facts about physical geography on a global spatial level. Content exemplified by the teachers are climate and global climate zones, atmosphere and winds, astronomy and hydrosphere (Alexandra & Biljana, 2013) (Ana, 2013) (Dusica, 2013) (Ljiljana, 2013) (Mira, 2013) (Slavisa, 2013). According to Mira, there is one class in fifth grade when speaking about air where she can teach about sustainable development (Mira, 2013).

In sixth grade, physical geography is finished by studying planet earth, its water and population and how mankind influence geography. After that, the focus is on regional geography, starting with Europe. The geography of Europe and its regions consisting of South, Central, Western, North and Eastern Europe are dealt with during the rest of the year (Serbian Ministry of Education, 2011/12). Mira states that the lessons concerning water can be used for teaching sustainable development and that she speaks of environmental questions when speaking of Britain, Poland, the Ruhr area and the Mediterranean for example (Mira, 2013).

In seventh grade, the rest of the continents are taught and in eighth grade the focus is on Serbia during the whole year. Then rivers, mountains and lakes together with economical geography of Serbia are on the agenda (Alexandra & Biljana, 2013) (Dusica, 2013) (Slavisa, 2013). According to Ana, in eighth grade there is some content in one lesson dealing with environmental issues (Ana, 2013). In eighth grade, Dusica tries to connect what they learn about Serbia and apply it on a global level (Dusica, 2013).

5.2.7 Spatial difference in teaching for sustainable development

Throughout the interviews, teachers repeatedly referred and compared to other places to explain their own situation. This give us a hunch about how place is important to the identity and profession of a teacher.

Alexandra and Biljana refer to how classes in the countryside have fewer students in each class than in the city and that this makes teaching easier for teachers in rural areas. They also tell me that the closeness between schools and local governments make organization easier and that local projects

dealing with the nearby environment can be arranged more easily there. They specifically exemplify with the small town where I also made interviews. They also believe that people there have a different attitude and that projects like making students clean the neighborhood could be organized more easily there (Alexandra & Biljana, 2013). Ljiljana, who is teaching in the small town referred to tells me that students in big cities are less well behaved and disciplined and that the respect for teachers are probably better in rural areas (Ljiljana, 2013).

But the teachers also refer to places outside Serbia; other countries to explain how Serbia is different. Slavisa relates to colleagues from Switzerland and Portugal to describe his working conditions and to explain what, according to him is still good in the Serbian educational system despite several problems (Slavisa, 2013). Alexandra and Biljana also make these comparisons with teaching in other countries and describe that their system is totally different and they are not able to teach the way teachers do in other parts of Europe (Alexandra & Biljana, 2013). This reasoning and telling about teaching in other places confirm that space and place of geographical context is important to teaching.

Let us sum up what characterizes teachers' ideas and teaching of sustainable development and how geographical context is significant:

- Teaching is shaped by lack of autonomy and resources.
- Essential content of geography teaching: Basic knowledge about geography and ability to read and use maps. Sorting out important information and criticism of sources together with cultural values and understanding of the Serbian society are also important.
- Methods of geography teaching: General didactical ideas are guiding teaching. Practical methods with short films, quizzes and blank maps are used.
- Teaching about sustainable development is relatively absent in Serbian geography teaching.
- The starting point is generally ecological with an environmental issue as example. Social and economical perspectives are added together with different scales of space and time.
- The curriculum and its structure based on grades and lessons supply a detailed teaching plan for what to teach when. In terms of teaching content current times are focused with some connections to history. The future is hardly discussed.
- Spatial differences are highlighted to define and visualize the individual situation and identity. It also provides important perspectives and understanding. Teaching content is focused on local conditions as well as regional and international ones throughout the grades.

6 Discussion

In this chapter I discuss the results of this study and some possible explanations. I also relate the results of this study to the previous research discussed earlier. This is done under two subheadings focusing on the geographical context and its consequences respectively. Essential themes and keywords are here marked in *italics*. Some weaknesses of the study are subsequently identified and discussed. Finally I widen the perspective and discuss the significance of this study in a larger context.

6.1 The Serbian geographical context and its consequences for teaching

The expectations of this study - that issues of geographical context such as social, economical, environmental and cultural conditions shape teaching of sustainable development – was met by the results.

6.1.1 Social, economical and cultural factors shaping the Serbian geographical context

Teachers refer to how economical issues create constraints and values limiting their teaching of sustainable development. Social and cultural values prove to be important both to how the teachers teach but also to how they define and discuss sustainable development. But shaping factors also proved to work on different levels. The possible *membership of the European Union* has brought reforms to the educational system. The realization is slow however or maybe even non-existent and is hampered by traditional conflicting values. This conflict is also shown in the lacking legitimacy of the Serbian PISA-results, exposed by Slavisa.

The country's *history of conflicts* was also expected to be seen in definitions and teaching of sustainable development, but was not. The teachers though do not bring these issues up spontaneously. On a direct question however they state that the regional and global levels do influence their teaching. For example, natural disasters can become teaching content in class. Conflicts are discussed as a factor shaping the present social and economical situation, but not much mentioned as teaching content. This was surprising. The subject geography is mainly described as based on factual knowledge about the present. The past is not considered. The subject also has great focus on physical and regional geography. Human geography is mainly mentioned as aspects when teaching of regions and countries. Together with a rigidly regulated curriculum not including issues of conflict and social sustainability, these themes are unlikely to become teaching content.

The *general Serbian attitude* to sustainable development also proved to be a factor shaping teaching about the same. The teachers witness of how low awareness is working against their means of giving students a more open-minded approach to life and reality. Ljiljana speaks of how environmental protection is treated mainly in kindergarten but is then left out of the curriculum in primary school. This together with the lack of SD in the curriculum indicate a system of values considering environmental issues not as very important or as threats which can or should be hindered with education and knowledge.

Resources and constraints proved to be of great importance to several aspects of the geographical context. The curriculum is for example considered as a steering constraint but also as an important resource. As noted initially, resources and constraints are closely linked. Lack of resources put up constraints and many of these could be removed with additional resources. Both physical objects and

techniques are mentioned as resources. But also non-materials as knowledge and teaching time are considered important resources.

When *awareness and knowledge* is lacking, it opens up for external agents to play a more important role. These are also established as a factor shaping geographical context in this study. Mira is proof of how external agents can get considerable influence over teaching and education when providing her with knowledge and materials on the seminar she took part in. Before that seminar about sustainable development and environmental questions she did not teach at all about those issues. Now though, she seems to be deeply engaged in them. Despite the strict regulations of the curriculum the teaching is in this case also subject to external interest and intentions.

According to the socio-spatial dialectics (Gren & Hallin, 2003, s. 154) accounted for earlier, the close *interconnectedness of space and social life* can not be ignored, and neither in this case. Space on different scales of society interact and will shape each other both instantly and over time. This interconnectedness is also relevant to attitudes to sustainable development. Societal space with its values shape teachers and teaching space, but the influence is also reversed. What is being taught today (or what is not being taught) will shape society today and in ten or thirty years. The interconnectedness works both ways. The strict regulation of teachers therefore threatens to conserve societal attitudes instead of changing them for the better.

6.1.2 Teachers and teaching in the Serbian geographical context

The curriculum is essential in shaping teaching of sustainable development. A general impression from the interviews is that questions concerning what to teach are more thoroughly answered than those regarding how or why. Questions concerning what to teach are frequently answered with referring to the curriculum and its structure of grades and lessons. The teachers seem to have difficulties or no need to discuss their own *professional role* or what they as teachers add to their students. My questions about what factors are shaping their teaching are met with incomprehension and further questions about what I mean: other regulations? This witness of the strong influence the curriculum has not only on teaching, but on teachers as professionals and their professional role, as they do not seem to recognize how any other factors could shape their work.

This could also be connected to the lack of practice in university education for teachers. The teachers talk about the absence of practice and didactical elements in teacher education which might be an explanation to the lacking internal discussion about their own teaching. The fact that the teachers might be working at several schools and may have one part time working colleague teaching the same subject, could also be a preventing factor.

The teachers are also relatively unaware of the international level of discussion about geographical issues and geography didactics. This could of course be derived from a lack of interest in the same. But it may be that the educational culture combined with a history of isolation is contributing to the feeling of *exclusion from the international community*? The generally high language barrier could also be suspected as being part of the explanation. Slavisa is a good example confirming the connection: he is the only one speaking English during the interview and he is also frequently referring to European colleagues and educational systems. Nevertheless he is also the one talking of lacking access and knowledge about the international theoretical discussion about geographical issues as a

problem. This strengthens the idea that there is more than language standing in the way for participation on the international platform. This is an aspect important for the international community to recognize.

As a result of the teachers not being particularly eager to discuss their own teaching except from in terms of the curriculum some of the didactical questions are left only partly treated in this study. The questions of what, when and why in teaching about sustainable development has been somewhat treated in the previous text dealing with the content of teaching. The questions of geographical concern: about who, when and where turned out to be more interesting from a meta-perspective. They were also useful for discussing teaching on a general level.

The results found in this study correspond to some extent with the results by other researchers described earlier. As in the study by Cotton and others (2007) the teachers found SD difficult to define and issues of environmental nature were most frequent in their defining statements. Some of the teachers in this study also expressed a general interest to learn more about SD and would like it to be a greater part of their teaching. The teachers though did not express as good knowledge about different aspects of SD as the teachers in the study by Athanaisios and others (2006). Nor did they express the explicit purposes of ESD as in the study by Björneloo (2007). This can probably be explained by the fact that SD is not stated as such in the curriculum. Consequently it is neither part of the teacher education nor the further education for working teachers.

The teaching described by the teachers in this study do in some ways *connect to local conditions* and the reality of the students and is described as favorable for learning by Jansund and Westermark (2013). More could be done though to make teaching connect to the everyday life of students in favour of learning for sustainable development. However the comprehensive curriculum and its theoretical focus together with a traditional educational system raise obstacles to this kind of teaching. A closer study of contents prescribed by the curriculum could have been interesting but is not in the focus neither in time nor in space for this study.

According to my definition formed from earlier research on page 6 in this paper, some central aspects of ESD are generally lacking in the teaching described in this study.

“In sum, definitions of SD and ESD have been influenced by the Brundtland Commission to include environmental, social, economical and cultural aspects. (...) ESD includes aspects of time and space and is consequently defined as future oriented and globally relevant. Students are to see geographical links and consequences of different actions and to gain respect, responsibility, understanding and participation resulting in action competence and distance moral”. (my definition from p 6).

The first part: of environmental, social, economical and cultural aspects including aspects of time and space are clearly found in the examples above. But what characterizes ESD is an incorporation of all these perspectives with aspects of cause and effect, action for development and global ethics. And such teaching is generally lacking. Instead the teaching can be categorized as mainly normative environmental education (see table 1, p 6 (Sandell, Öhman, & Östman, 2005)). This is based on the focus on physical geography with social aspects, a time scale of present and future and geographical perspectives including local and global levels. To fully perform teaching applying to the definition of ESD some work is yet to be done on both national and local level of the Serbian society.

Looking forward with the results of this study at hand, Serbia and Serbian educational system and teachers seems stand at a crossroads in the near future. The negotiated membership of the European Union has already – as we have seen – had influence on the Serbian educational system and the importance of PISA-test results is an expression of this. The results seem to be used by the ministry as an indicator on the Serbian educations alignment to the European standards. Poor results could then have great consequences. These standards and the ideas about knowledge represented by the PISA tests are not necessarily the same as those today represented by the Serbian educational system and its practitioners. Slavisa's questioning of these tests as a better measure of knowledge than national competitions is an expression of this clash of educational cultures. Slavisa undoubtedly takes great pride in his students being successful in these competitions. This may be expected to have certain influence on his teaching. One gets what one measures. What knowledge will be measured and how, will most certainly, have an impact on Serbian teaching in a near future.

6.2 Weaknesses of the study

A critical point of this study was whether the teachers would understand and be able to relate to the questions about sustainable development. The concern was proven legitimate as the notion was a rather new and not well established idea in the Serbian educational context.

A closely connected weakness is the difficulty of deciding whether someone teaches for sustainable development or not. It is not easily decided with yes or no, it is a sliding scale. The teachers in this study are not eager to say they teach about SD but in some of their examples of teaching there are aspects of a sustainability approach. They are not aware of the aspects of sustainability present in their teaching, and maybe they do not consider it legitimate teaching content since it is not included in the curriculum. Several of the teachers in the interviews do discuss topics and geographical issues from a perspective of sustainability though not outspoken. It is however difficult to decide to what extent these intellectual discussions during interviews reach all the way to the classroom and teaching.

A possible weakness of the study is also the risk of the teachers not being honest in the interviews. I never got the impression of someone trying to hide something during the interviews. But given the power of the curriculum and the governmental ministry doing inspections of teaching of course there is an incentive for the teachers to tell me that they strictly follow the curriculum, especially if they suspect their words are to reach the ministry through me.

When transcribing the interviews I realize that I in some cases have filled in words to try to help the respondent formulate his or her answers. This is not optimal but considering the language being a weakness for both of us it must be seen as a way of understanding each other. It would have been interesting and valuable to let the teachers read and check the results and the conclusions of this study. Circumstances such as different languages and me not being able to travel back to see them does however make this impossible.

6.3 A wider perspective: Implications of understanding the geographical context

The importance of creating awareness and changing patterns of behavior are crucial to solve the threats of the current development, what makes school and educational system so important. But a question raised during the progress of this study is whether a sustainable development is at all tangible when there is hardly development at all. According to Professor Olivera Gajic that was the exact problem. She said sustainability is not tangible when not having enough material resources for the daily living. Then one is not having any expectations for the future to bring anything better than now. Young people see how their parents struggle and how higher education is not necessarily helping. They only have themselves to rely on for a better future. In their eyes sustainability is rather distant. Considering that, I come to ask myself if it is even realistic or fair to expect awareness about a global development, sustainable for all coming generations. On the other hand, how is sustainability to be achieved if not by everyone? There is a vicious circle of distrust in the future, cultural values and lack of education.

Sustainable development is defined and set as the global educational goal on the agenda of the international community. But if the international community is not including everyone what is then the probability of that happening? Sustainability is the running issue for the rich countries but any development whatsoever is the focus of the poor. If there is yet no positive development it is difficult to consider the sustainability of it.

Understanding the geographical context, its importance and its implications is of great value. It can help local and national actors but also the international community understanding unique conditions, possibilities and obstacles of a certain place. Since the geographical context is shaping society and its individuals it is also shaping the future. As such the understanding of it could be an essential factor in order to achieve sustainability in education and development.

7 Conclusion

The objective of this study was to understand how place and location - geographical context - shape teachers' ideas and teaching of sustainable development.

A conclusion is that the geographical context is of great importance in shaping teachers ideas and teaching. Figure 4 below illustrate the geographical context and its consequences on teaching. In the left square the shaping factors of the geographical context are accounted for which answers the first of the two research questions (a). The right square shows some of the salient characteristics of Serbian teaching of geography and sustainable development. This square answers the second research question (b).

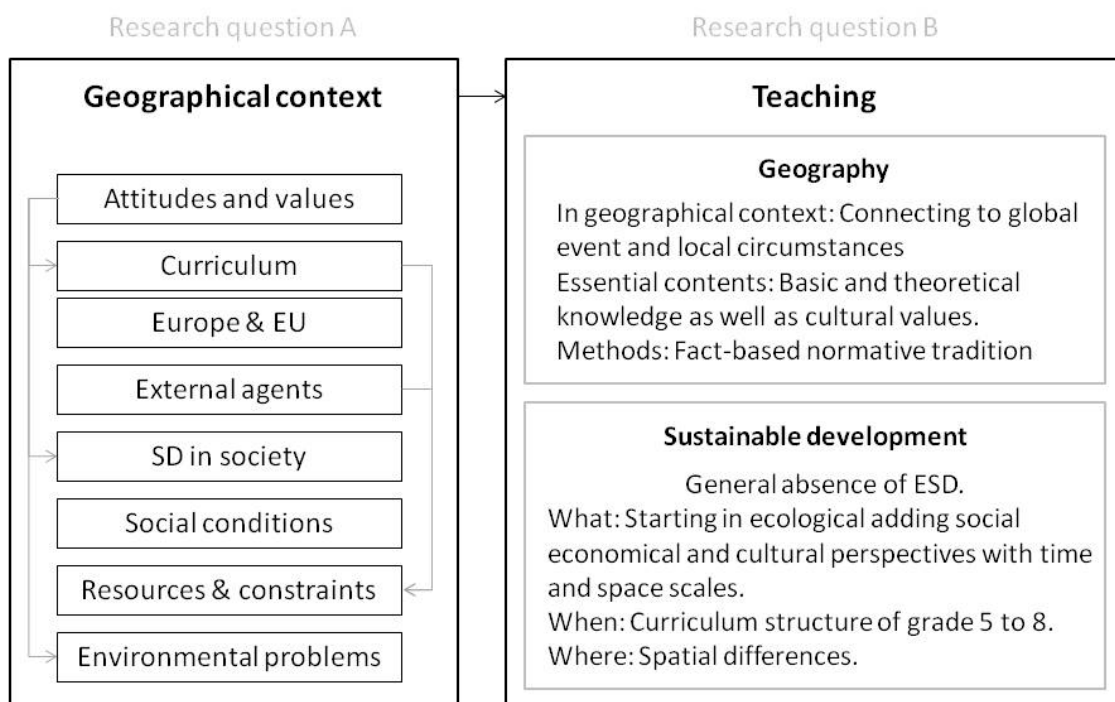


Figure 4 Factors shaping geographical context and teaching.

Of the shaping factors found in this study, strong hierarchy from government to teachers is the most important one. This is carried out mainly through a strictly regulated curriculum. The shaping is visible throughout the results of this study. The curriculum is shaping not just the teaching contents but also methods of teaching and what further education for teachers is being provided. As such it also shapes the general knowledge and attitudes to SD and ESD among teachers.

The teachers' attitudes to SD are generally positive. This seems to have a connection to some knowledge and awareness about issues of sustainability. Only a few of the teachers say they have good or any knowledge about SD. Their statements about their teaching however, carry aspects of ESD. The general knowledge and awareness about SD is rather low in the Serbian society which shape teachers and their work. Economical and social problems are in addition general obstacles to teaching in general and teaching about sustainability in particular. These results contribute to a better understanding of how geographical context shape ESD and in the long term a more sustainable development.

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9 Appendices

9.1 Appendix 1 – Interview guide for teachers

Guide and support for deep interviews with geography teachers.

Tell about myself, why I am here and my objective of this study:

Starting questions

- Could you tell me a little about yourself and your profession as a teacher?
 - o Name
 - o Age
 - o Education: Where, when, which subjects etc
 - o Number of years as a teacher
 - o Other subjects of teaching at the moment
 - o Have you worked on other schools or in different cities before?

Teaching

Essential content in geography teaching

- What do you want your students to learn from your teaching in geography, what is the most important knowledge for them to gain?

ESD – content and teaching methods

- How would you define sustainable development?
- (How) Do you teach about sustainable development in your geography classes?
 - o Is education about sustainable development integrated with or separated from other education? Can you give me an example?
 - o What is shaping your teaching (for sustainable development)? What structural level is most important in shaping, is it the international or European, the Serbian, local regulations or something/someone here at this school?
 - o The content of your teaching is it focused on a local, Serbian or international level?
- Is your education about sustainable development focused on environmental, social economical or other issues?

- Why is that?
- Can you exemplify?
- How would you describe your ideal teaching about sustainable development?
 - Why are you not able to teach like that, what is stopping you?
- What do you want your students to learn from your teaching for sustainable development?

The meaning of place

- Why is it important for you to teach about sustainable development?
 - Why is it important in Serbia?

Contents shaped by context

- How is your teaching about sustainable development shaped by what happens in Serbia?
 - What is the importance of the local, the national or regional and the international level?
- What regulations are important to you as a teacher and shape your teaching?
- Is the international debate on education for sustainable development relevant to you and/or your teaching?

Definition of SD shaped by context

- What shaped your definition and interpretation of what sustainable development is?
 - Something that has happened here in Serbia?
 - Has it changed or redefined? When and why?

Finishing

- Those were my questions; would you like to add something?
- Is there anyone you think I should meet and talk to for my project?
- Could I have your contacts so I can come back to you if I need to later?
- Thank you so much for your time and participation!

9.2 Appendix 2 - Interview guide for informants

Guide and support for interview/ conversation with professors and others contributing to the understanding of context but not being teachers.

- What is your position (why are you relevant for me to interview for my study)?
- Is the geography subject at university separated into physical and human geography? If so, how are these parts included in teacher education?
- Is SD part of or included in teacher education?
- What formal document and rules regulate schools, teachers' work and what is said on SD in them?
- How is sustainability and sustainable development interpreted in Serbian society today (as social, ecological or economical)?
- Are there many uneducated teachers working in schools in Serbia?
- Are there any registers over teachers/educated teachers working in Serbia? (This could be helpful for me in order to find respondents.)
- Can I have your contact information for future contacts and further questions?
- Can you think of anyone else you think I should talk to for the purpose of the study?

9.3 Appendix 3 – Extract of the Serbian geography curriculum

The following extract is translated from Serbian to English with a free online translation service, and was originally published in the Serbian geography curriculum from 2011/2012 (Serbian Ministry of Education, 2011/12).

OPERATION CURRICULUM AND PROGRAMME 2011 / 2012th

The time structure of the annual program GEOGRAPHY – 5th class

Cont ent				Name of the teaching unit	Activity
Intro		1.	1.	Object classification and importance of geography	introduction
SPACE AND EARTH	september	2.	2.	Universe and solar system bodies	processing
		3.	3.	Solar system	processing
		4.	4.	Solar system bodies; Solar System	repetition
		5.	5.	Small bodies of the solar system	processing
GEOGRAPHICAL MAP	October	6.	6.	The shape and size of the Earth	processing
		7.	7.	The shape and size of the Earth	repetition
		8.	8.	Geographic network	processing
GEOGRAPHICAL MAP	November	9.	9.	Latitude and longitude	processing
		10.	10.	Latitude and longitude	training
		11.	11.	Mathematical elements map	processing
		12.	12.	Geographical elements and presentation of maps	processing
	13.	13.	Measuring the map and navigation maps	training	
GEOGRAPHICAL MAP	December	14.	14.	Geographic map	systematization
		15.	15.	Geographic map	evaluation
mo ve		16.	16.	The rotation of the Earth and its consequences	processing

	January	17.	17.	Sun and light	processing
		18.	18.	The revolution of the Earth and its consequences	processing
		19.	19.	Earth movements	repetition
INTERNAL STRUCTURE AND RELIEF	February	20.	20.	Inside structure of the Earth	processing
		21.	21.	Types of rocks and their origin	processing
		22.	22.	The internal structure of the Earth and the types of rocks	repetition
		23.	23.	Lithospheric plates: the movement of plates and continents	processing
	March	24.	24.	Volcanism and earthquakes	processing
		25.	25.	Volcanism and earthquakes	repetition
		26.	26.	Relief; occurrence and type of mountain	processing
		27.	27.	Shaping the relief, effect of external forces	processing
	April	28.	28.	Shaping the relief, effect of external forces	processing
		29.	29.	Internal structure and landscape of the country	systematization
30.		30.	Internal structure and landscape of the country	evaluation	
Air depleting	May	31.	31.	The composition and structure of the atmosphere	processing
		32.	32.	Time: meteorological elements and phenomena, weather forecast.	processing
		33.	33.	The atmosphere	repetition
		34.	34.	Climate: Climate factors, major climate	processing
	June	35.	35.	Atmospheric pollution	processing
		36.	36.	We learned in the fifth grade ...	systematization