



Basic Science Course (NV)

Utilizing student preferences to improve a transition from Geography in primary school to Physical Geography in high school through NV

Aputsiaq Bent Simonsen
Kandidatspeciale – Geografi og Geoinformatik

Vejleder: Robert Harry Evans

IND's studenterserie nr. 74, 2019



INSTITUT FOR NATURFAGENES DIDAKTIK, www.ind.ku.dk

Alle publikationer fra IND er tilgængelige via hjemmesiden.

IND's studenterserie

39. Jeanette Kjølbaek: One-dimensional regression in high school (2015)
40. Anders Wolfsberg: A praxeological investigation of divergence – Exploring challenges of teaching and learning math-in-physics (2015)
41. Asger Brix Jensen: Number tricks as a didactical tool for teaching elementary algebra (2015)
42. Katrine Frovin Gravesen: Forskningslignende situationer på et førsteårskursus i matematisk analyse (2015)
43. Lene Eriksen: Studie og forskningsforløb om modellering med variabelsammenhænge (2015)
44. Caroline Sofie Poulsen: Basic Algebra in the transition from lower secondary school to high school (2015)
45. Rasmus Olsen Svensson: Komparativ undersøgelse af deduktiv og induktiv matematikundervisning (2016)
46. Leonora Simony: Teaching authentic cutting-edge science to high school students(2016)
47. Lotte Nørtoft: The Trigonometric Functions - The transition from geometric tools to functions (2016)
48. Aske Henriksen: Pattern Analysis as Entrance to Algebraic Proof Situations at C-level (2016)
49. Maria Hørlyk Møller Kongshavn: Gymnasieelevers og Lærerstuderendes Viden Om Rationale Tal (2016)
50. Anne Kathrine Wellendorf Knudsen and Line Steckhahn Sørensen: The Themes of Trigonometry and Power Functions in Relation to the CAS Tool GeoGebra (2016)
51. Camilla Margrethe Mattson: A Study on Teacher Knowledge Employing Hypothetical Teacher Tasks - Based on the Principles of the Anthropological Theory of Didactics (2016)
52. Tanja Rosenberg Nielsen: Logical aspects of equations and equation solving - Upper secondary school students' practices with equations (2016)
53. Mikkel Mathias Lindahl and Jonas Kyhnæb: Teaching infinitesimal calculus in high school - with infinitesimals (2016)
54. Jonas Niemann: Becoming a Chemist – First Year at University
55. Laura Mark Jensen: Feedback er noget vi giver til hinanden - Udvikling af Praksis for Formativ Feedback på Kurset Almen Mikrobiologi (2017)
56. Linn Damsgaard & Lauge Bjørnskov Madsen: Undersøgelserbaseret naturfagsundervisning på GUX-Nuuk (2017)
57. Sara Lehné: Modeling and Measuring Teachers' praxeologies for teaching Mathematics (2017)
58. Ida Viola Kalmak Andersen: Interdisciplinarity in the Basic Science Course (2017)
59. Niels Andreas Hvitved: Situations for modelling Fermi Problems with multivariate functions (2017)
60. Lasse Damgaard Christensen: How many people have ever lived? A study and research path (2018)
61. Adonis Anthony Barbaso: Student Difficulties concerning linear functions and linear models (2018)
62. Christina Frausing Binau & Dorte Salomonsen: Integreret naturfag i Danmark? (2018)
63. Jesper Melchjorsen & Pia Møller Jensen: Klasserumsledelse i naturvidenskabelige fag (2018)
64. Jan Boddum Larsen, Den lille ingeniør - Motivation i Praktisk arbejdsfællesskab (2018)
65. Annemette Vestergaard Witt & Tanja Skrydstrup Kjær, Projekt kollegasparring på Ribe Katedralskole (2018)
66. Martin Mejlhede Jensen: Laboratorieforsøgs betydning for elevers læring, set gennem lærernes briller (2018)
67. Christian Peter Stolt: The status and potentials of citizen science: A mixed-method evaluation of the Danish citizen science landscape (2018)
68. Mathilde Lærke Chrøis: The Construction of Scientific Method (2018)
69. Magnus Vinding: The Nature of Mathematics Given Physicalism (2018)
70. Jakob Holm: The Implementation of Inquiry-based Teaching (2019)
71. Louise Uglebjerg: A Study and Research Path (2019)
72. Anders Tørring Kolding & Jonas Tarp Jørgensen: Physical Activity in the PULSE Exhibit (2019)
73. Simon Arent Vedel: Teaching the Formula of Centripetal Acceleration (2019)
74. **Aputsiq Bent Simonsen: Basic Science Course (NV) (2019)**

IND's studenterserie omfatter kandidatspecialer, bachelorprojekter og masterafhandlinger skrevet ved eller i tilknytning til Institut for Naturfagenes Didaktik. Disse drejer sig ofte om uddannelsesfaglige problemstillinger, der har interesse også uden for universitetets mure. De publiceres derfor i elektronisk form, naturligvis under forudsætning af samtykke fra forfatterne. Det er tale om studenterarbejder, og ikke endelige forskningspublikationer.

Se hele serien på: www.ind.ku.dk/publikationer/studenterserien/



Master thesis, Geography & Geoinformatics

Aputsiaq Bent Simonsen

Basic Science Course (NV)

Utilizing student preferences to improve a transition from Geography in primary school to Physical Geography in high school through NV

Supervisor: Robert Harry Evans

Submitted on: 15th April 2019

Abstract

The purpose of this thesis is to study students' transition from Geography in primary school, through the basic science course (NV) and to Physical Geography in high school, in order to gain a better insight into the students' preferences in relation to teaching. Furthermore, a suggestion on how this knowledge of these preferences can be used by physical geography teachers in their NV teaching to make the transition from primary school to physical geography in high school better for the students. This was done through a study of 104 newly started students' experience of this particular transition at the beginning of the school year 2018/2019. The results of the study show, among other things, that the students' relation to the teachers is very important and can have a positive as well as a negative influence on their experience of a subject. In addition, the study shows that the NV course can feel very compact and intense for the students. It also shows that the students like group work and experimental work, and that the use of visual aids in the teaching is appreciated among the students and preferred over what can be called static teaching material. These preferences are used to make concrete suggestions for what Physical Geography teachers can do in their teaching in the NV course, to make the transition from Geography in primary school to Physical Geography in high school better for the students. The data in the study was collected using questionnaires and interviews with students, over a period of 2½ months, and these are compared with previous studies on school-student transition from primary school to high school. The data processing is done via a mixed-method approach with thematic analysis and statistical analyzes of the data set.

Abstract in Danish

Formålet med dette speciale er, at undersøge elevers transition fra Geografi i grundskolen, igennem det naturvidenskabelige grundforløb (NV) og til Naturgeografi i gymnasiet, for at få bedre indblik i elevernes præferencer i forhold til undervisningen. Yderligere ses der på hvordan viden om disse præferencer kan bruges af naturgeografilærere i deres NV-undervisning til at gøre transitionen fra grundskolen til naturgeografi i gymnasiet bedre for eleverne. Dette er gjort ved en undersøgelse af 104 nyopstartede elevers oplevelse af netop denne transition i starten af skoleåret 2018/2019. Resultaterne af undersøgelsen viser bl.a., at elevernes relation til lærerne er meget vigtig og kan have en positiv såvel som negativ indflydelse på deres oplevelse af et givent fag. Desuden viser undersøgelsen, at NV-forløbet kan føles meget kompakt og intens for eleverne. Den viser også, at eleverne godt kan lide gruppearbejde og eksperimentelt arbejde, samt at brugen af visuelle hjælpemidler i undervisningen er værdsat blandt eleverne og foretrukket frem for det der kan kaldes statisk undervisningsmateriale. Disse præferencer bruges til at fremsætte konkrete forslag til hvad Naturgeografilærere kan gøre i deres undervisning i NV-forløbet, for at gøre transitionen fra Geografi i grundskolen til Naturgeografi i gymnasiet bedre for eleverne. Data i undersøgelsen er indsamlet ved hjælp af spørgeskemaer og interviews med eleverne, over en periode på 2½ måneder, og disse sammenholdes med tidligere undersøgelser om skoleelevers transition fra grundskolen til gymnasiet. Databehandlingen er foretaget via en mixed-methods-tilgang med tematisk analyse og statistiske analyser af datasættet.

Acknowledgment

I would like to thank my supervisor Robert Harry Evans for helping me through my thesis. His guidance and good mood have been an ever present help for a sometimes frustrated student.

I would also like to thank the contact person at the high school where all the data was collected. Without the help of the person the data collection, the entire basis for the thesis, had never been possible. Also big thanks to all the students who participated in the study. Thank you for being so open and honest about your feelings and experiences. It has been a very exciting insight into a world that is otherwise unknown to many of us. Also thanks to the high school teachers, beyond the contact person, who opened their teaching to me so that I could question their students.

I would like to thank the fellow student who made a verifying test of my data set. It was a great help. I would also like to thank all the other thesis students at IND for making the whole writing process both more fun and manageable.

INTRODUCTION	6
Research question	11
METHODOLOGY	12
Method.....	13
Participants in the study	13
The data collection.....	14
Thematic analysis.....	25
Coding.....	27
Verification of themes.....	29
The quantitative data analysis	31
RESULTS	32
The students' positive and negative experiences with the teaching	32
Test for inter-subjectivity.....	34
Changes in how the students feel about subjects throughout the transition	36
DISCUSSION	42
Discussion of the method.....	42
The use of the mixed method	42
Verification of Themes	42
Thematic analysis.....	42
Discussion of the results	44
The relationship between the students and the teacher	45
The use of group work and experimental work in teaching	48
Too high intensity in the teaching.....	51
The use of visual aids in teaching	53
Student' interest for the subject	55
The transition from a completed subject to a new one	58
The students who participated in all three data collections	59
CONCLUSION.....	61
REFERENCES	66
APPENDIX	68

Introduction

One of the first meetings with the high school world (STX) that the students face is the statutory Intro Course (Grundforløb) with General Language Understanding (Almen Sprogforståelse) (AP), Basic Science Course (Naturvidenskabeligt Grundforløb) (NV) and Mathematics, which primary function is to help the students get a good transition from primary school to high school (retsinformation.dk).

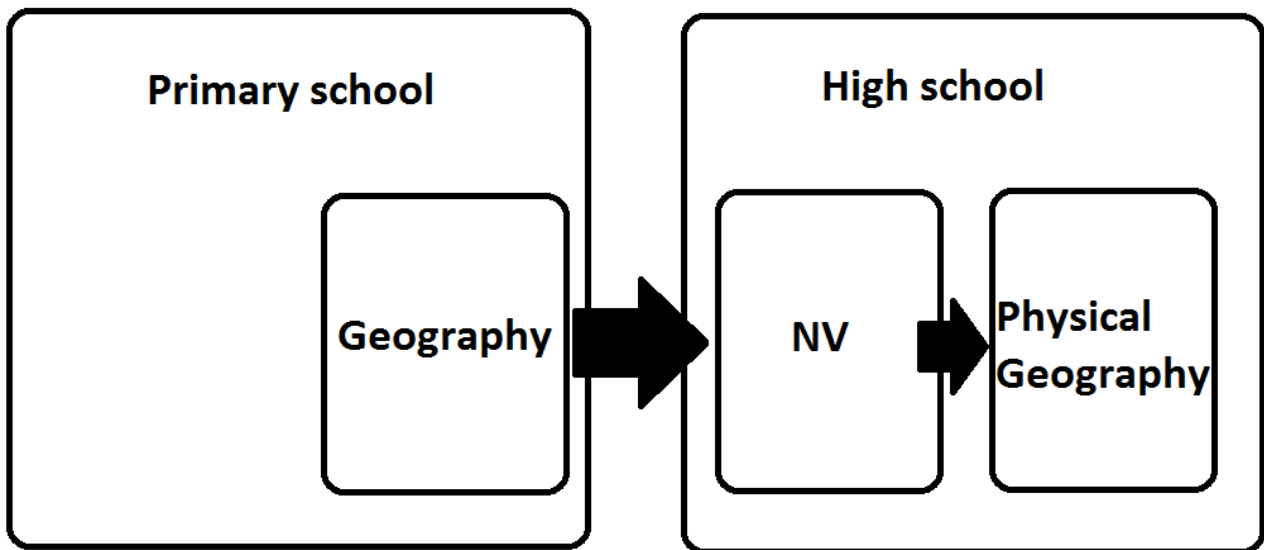


Figure 1. Transition from Geography in the primary school, through NV, to Physical Geography in high school.

For Physical Geography teachers, NV will be their students potential first meeting with their subjects. In this way, NV will act as a link between the students' previous experience with the subject Geography in primary school and their new subject Physical Geography in high school.

Extract from NV' Curriculum 2017 (NV Læreplan 2017) (uvm.dk)

"1.1 Identity

The Basic Science Course constitutes the high school introduction to science through work with basic elements of science.

3.1 Didactic principles

The teaching must be based on an academic level corresponding to the students' scientific and mathematical knowledge and method knowledge from the primary school."

What can be done to make this transition as good as possible for the physical geography students. This is something I will try to clarify in this thesis. But before a research can be started, it is necessary to clarify which actor it should be based on.

In high school, there are roughly three actors who have an interest in the transition from Geography in primary school to Physical Geography in high school being as good as possible: the students, the physical geography teachers and the administration, each with different approaches and motives.

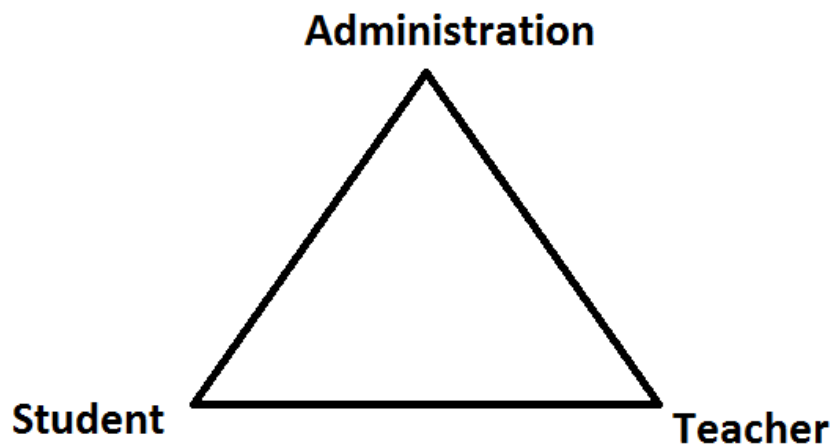


Figure 2. The actors in the transition.

In this thesis I wanted to try to look at how the students experience the transition and look at what they find positive and/or negative about it and in that relation look at what preferences they have for teaching. Hereafter, I will look at how a physical geography teacher can use this knowledge in his NV teaching to make the transition better from Geography in primary school, through NV, to Physical Geography in high school.

In a search for a qualified answer to my question, I could not find a study that specifically dealt with the transition from Geography in primary school to Physical Geography in high school in a Danish context from the student's perspective. Therefore, I myself initiated a study for my thesis. However, there were other studies that had dealt with similar problems that I thought might help answer the objectives of this thesis.

Martin Krabbe Sillasen and Hanna Mølgaard' report from 2005, *Overgangsproblemer i naturfagene mellem folkeskole og gymnasium - et udviklingsprojekt i Silkeborg og Bjerringbro 2004-2005* (Transitional problems in the science courses between primary schools and high schools - a development project from Silkeborg and Bjerringbro 2004-2005) (Sillasen & Mølgaard, 2005) had an aim of increasing teachers' awareness of the factors that create transitional problems for the students as well as allowing the teachers to, through increased

awareness, teach in a way, so that the students' transitional problems are reduced, and to give the primary school students experience with the way in which the high school teachers teach, and to use the competence approach to develop primary school- and high school teachers teaching, and to gain insight into primary school- and high school students' experience with teaching in science as a basis for further development of science education and reduction of the transitional problem. Their study consisted of several teachers and students from the 8th and 9th grade in primary schools and 1st grade in high school classes. The report finds several important points but the one I included in my thesis were how the students' motivation and engagement to the teaching are tied to the teachers academic knowledge, personal engagement and the varying form of teaching.

Morten Blomhøj and Tomas Højgaard Jensen's article from 2007, *SOS-projektet – didaktisk modellering af et sammenhængsproblem* (The SOS project - didactic modeling of a coherence problem) (Blomhøj & Jensens, 2007) which was published in the journal MONA 2007-3, referred to a research and development project. The project was about competence based organization and evaluation of mathematics teaching with the aim of creating greater coherence between the mathematics teaching in primary school and high school. Several 9th grades were in the project. The project was initiated because many mathematics teachers in the high school had experienced that students who receive high grades in mathematics teaching and examination in 9th grade did not do so well in mathematics in 1st grade in high school. A study was done to look at whether or not the mathematics examination in 9th grade accommodated the transition between the two institutions. Here, it was known that the students had difficulties understanding the textbooks in high school, as they lacked the competence of symbolism and formalism. A result I have used in my thesis.

Jette Rygaard's report from 2011, *Evaluering af naturvidenskabeligt grundforløb* (Evaluation of the Basic Science Course) issued by the Ministry of Education to obtain some quantitative data on the Basic Science Course (Poulsen, 2011). In January 2012, students, teachers and high school administrations had reported in evaluations based on the Basic Science Courses held at the high schools in autumn 2011. A total of 82 high schools were included in the survey, in which a total of 6.049 students answered questionnaires (n = 6.049). Here they answered, among other things, questions about:

To what extent has NV given you an insight into what the science subjects is comprised of?

To what extent do you think NV has made you more interested in and curious about the knowledge from the sciences courses?

This gave me insight I could use in my thesis.

Aase Bitch Ebbensgaard, Jens Christian Jacobsen and Lars Ulriksen' report from 2014, *Overgangsproblemer mellem grundskole og gymnasium i fagene dansk, matematik og engelsk* (Transitional problems between primary school and high school in the subjects Danish, Mathematics and English) (Ebbensgaard, Jacobsen & Ulriksen, 2014) has an aim of mapping the knowledge base for the students' academic- and study competences when they start in high school in the subjects Danish, Mathematics and English, as well as to establish closer cooperation between the primary school teachers and the high school teachers, and to strengthen the students' ability to abstraction and handle the amount of reading material, as well as to develop methods for dealing with the spread of the students qualification in the teaching. The study consisted of both quantitative and qualitative studies with teachers and students. The quantitative part consisted of a questionnaire survey of 198 teachers and 216 students. The qualitative part consisted of interviews of 91 persons in different positions (n = 505). The study highlights several important points, but those I have included in my thesis is; the importance of the students relation to their teacher, that students are lacking a greater interconnection between theory and practice in the subjects both in primary school and high school, and finally that students experience a great difference between the teaching in primary school and high school in relation to the pace and level of abstraction.

Henriette Tolstrup Holmegaard, Lene Møller Madsen and Lars Ulriksen' article from 2013, *A journey of negotiation and belonging: understanding students' transitions to science and engineering in higher education* (Holmegaard, Madsen & Ulriksen, 2013) is a study of the interaction between the students' expectations to the education and the experiences the students' experience in their meeting with new education. The article' goal is to clarify how students negotiate their identities in the transition process in attempting to create an affiliation with their new education. The study is based on interviews from 20 students over a three year period (n = 20). The study arrives at several points, but those I have included in my thesis are the following. First, there is often a gap between what the students expected with the new study and what they are actually experiencing. Secondly, that the students often find meaning and interest in the subjects they follow from the notion of what they need to from the subject afterwards and lastly,

that the students in the study used different strategies to acquire an academic identity that help them go through their study.

Rie Hjørnegaard Malm, Lene Møller Madsen, Lars Ulriksen and Andreas de Neergaard' report from 2016, *Det første år på Naturressourcer - En undersøgelse af studerendes oplevelser på det første år af bacheloruddannelsen i Naturressourcer på Københavns Universitet* (The first year at Natural Resources - A study of student experiences in the first year of the bachelor program in Natural Resources at the University of Copenhagen) (Malm, Madsen, Ulriksen & Neergaard, 2016) is a study to gain an understanding of the large dropout rate that is found in the study, Natural Resources, and to see what work can be done to make students more persistent in the program. The study gathered data at different times during the first year of the program where they received data from students; 64 responses from questionnaires, 66 responses from essays, 23 responses from interviews and 23 responses from workshops (n = 176). The study came to many points, but the ones I included in my thesis are that the students used three strategies (The Specialist-,The Perspective- and The Patiently Accepted Strategy) to find meaning in the subjects they had, which helped to be more persistent in the program.

Rambøll and the Danish Evaluation Institute' report from 2018, *Gymnasiereformen, Følgeforskningsprogram 3. delrapport* (The High School Reform, Follow-up Research Program 3rd Report) (Rambøll, 2018) is the third report in a follow-up research program going from 2017-2021 issued by the Ministry of Education to evaluate the work of the high schools in implementing The High School Reform from 2016. The report includes the first experiences with the new, Basic Science Course in the three-year high school educations. The report is based on questionnaire surveys conducted in January 2018. It registers data and case visits to 12 high schools that were conducted in April 2018. There are a total of 10.350 respondents in the survey (n = 10.350): students at their 1st year: 8.571, teachers: 1.527, administration: 210, chairmen: 42. In the report, 9 themes have been found to have influenced the new Basic Science Course: The Basic Science Course is perceived as compact, The transition from the intro class to the principle of study course (studieretning) class is difficult for the students - both socially and academically, General Language Understanding (AP) receive the lowest assessment among the multidisciplinary courses, The Mathematics Screening is used systematically, The evaluation interviews are to a large extent a well-being interview, The Intro Course tests can counteract the intention of increased emphasis on formative evaluation and feedback, the Intro Course gives insight into the forms of work in high school, but does not in itself have great significance for the

choice of the principle of study course, the Intro Course has different significance for different student types, do students choose principle of study course according to interest?.

Of these themes I found three that had results that could be useful in my thesis:

Do the students choose principle of study course according to interest?

Where it emerged on which basis the pupils choose their principle of study course, and how large a share they constitute.

The Basic Science Course is perceived as compact

Where it emerged that many of the students and teachers felt that the Basic Science Course was too compact, and what problems it caused.

The transition from the Intro Course class to the principle of study course (studieretning) class is difficult for the students - both socially and academically

Where it emerged that many of the students miss some kind of social interaction with other students in the Intro Course. Likewise, that several high schools use a "family" structure to try to solve this problem.

With knowledge from these studies and my own study, I will try to answer the following research question.

Research question

How can understanding of student preferences make students transition from Geography in the primary school, through NV, to Physical Geography in high school better?

- better for teachers could mean their planning of NV teaching
- better for students could mean more relatable content in the NV teaching

Methodology

To be able to answer the research question, both qualitative and quantitative data collection has been used for this thesis. This mixed-method is chosen to be able to generate and uncover the thesis' research question. Both methods have been necessary to give the nuance and depth of knowledge needed to give a more complete picture of the transition. The collection of data was done through questionnaires and interviews of newly started high school students at a high school. It is these students' experience that has been the material for the further analysis.

At the start of the thesis it was not clear which issues might apply to the students at the transition from Geography in the primary school through NV to Physical Geography in high school (STX), as this topic was not particularly well documented. Therefore, I have had to collect statements from students who were doing this particular transition before it was clarified which themes should be worked on. A process that was made using thematic analysis, which is more in-depth described later in this chapter.

At the same time as the collection of statements from the students, qualitative data were also collected on the same students with everything from gender, background, satisfaction and teaching structure in order to have something concrete and generally data to compare the analysis to.

This mix of both qualitative and quantitative data was done to such an extent that it was possible to explore, identify, find, describe, generalize and validate themes of the students' experiences of the transition.

In the actual analysis of the data set, the procedure was not very stringent, as it was uncertain for the start what to look for, and many of the themes and problems were first clarified during the process. An approach with a more open and flexible approach is also recognized and recommended by Johnson & Onwuegbuzie, 2004 and Braun & Clarke, 2006, in the context where it is relevant, which I also find to fit to this thesis.

Method

Participants in the study

The participants in the study were a group of newly started 1st grade students in a high school from the summer of 2018. After a correspondence with a physical geography teacher from the high school, which later became the primary contact person, during the summer of 2018, we agreed on that I could come and interview some of the teacher's new 1st grade students who started in August 2018.

The aim was to look at the students' feelings for the courses through their transition from Geography in primary school, through NV, to Physical Geography at high school and to see if their attitude toward the subjects changed during the transition, and to see what themes appeared as positive and negative experiences of the subjects. Therefore, questionnaires and interviews of three rounds were collected:

Table 1. Dates of the data collection.

1st collection	2nd collection	3rd collection
At the start of the students' NV course	After the students had completed their NV course	After the student had started Physical Geography
28/8 - 2018 and 29/8 - 2018	27/9 - 2018	12/11 - 2018 and 13/11 - 2018

A total of 104 individual students responded to the questionnaires, with eight responding to all three questionnaires, 56 responding to two of the questionnaires, and 40 responding to one of the questionnaires.

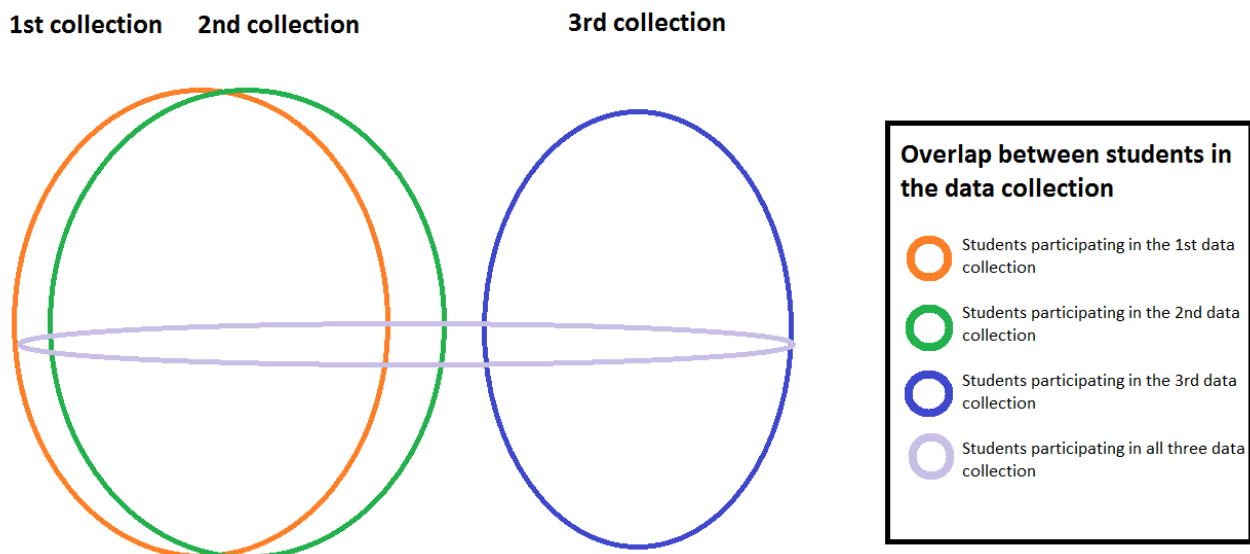


Figure 3. Overlap between students in the data collection.

It turned out to be problematic to gain access to a group of students who could answer all three questionnaires. After The High School Reform from 2016 (retsinformation.dk) the rules for the start of high schools (STX) were changed so that new 1st grade students were first placed in a start-up class in the Intro Course, and then in a new principle of study course (studieretning) class after the Intro Course. This is due to the fact that students do not have to indicate which principle of study course they want to follow before the admission to high school. Only at the end of the Intro Course, after a formative evaluation, the students must indicate which principle of study course they want to follow. This is unlike earlier where they had to apply for which principle of study course they wanted to follow before start-up, and then they were put in classes that they followed both in the Intro Course and in the further study program.

This new structure made it difficult to know which students were going to have Physical Geography after the Intro Course. Because, even though it was public which principle of study courses contained Physical Geography it was not determined which students would follow them at the start of the data collection, since this was first published after the Intro Course. Therefore, a strategy was prepared together with the contact person to question the students in two of the teacher' NV classes of two rounds (1st and 2nd collection), and then question the students in two of the teacher' new Physical Geography classes after the Intro Course (3rd collection) and hoped that there were some that was included in all three collections. It later turned out that there were only eight persons who did that. Therefore, the strategy was changed to address the answers from the first two collections separately, and the answers from the last collection separately, as it could not be argued that the same group of students was involved in all three. However, in cases where it makes sense, the eight students who answered all three questionnaires will be treated as a single group.

The data collection

Questionnaires

To be able to follow the development of the attitude towards the subjects in the transition, three questionnaires were made (appendix 1, 2 and 3), which the participants corresponded to at different times (table 1). The questions in the three questionnaires followed the same structure:

- The first part was about a subject that the students had just completed or were about to complete
- The second part was about a subject that the students were about to start, or one they could potentially start

This structure was used to compare the answers between the questionnaires. The only questionnaire that did not follow this structure was the last questionnaire, as the students in this group had Physical Geography and thus were at end of the transition. The questionnaires were surveys, but in practice they were collected as a group survey. The reason for this was to take advantage of first, the interview-based survey, in the form of more control in the actual completion, as I was physically present in the room when they were completed, and secondly the enquete-based survey to be become able to gather a larger sample of respondents over a shorter time frame (Hansen & Andersen, 2009). The questionnaires contained both closed and open questions with both factual and attitudinal questions, this were done in order to collect the needed qualitative and quantitative data.

Anonymity

Anonymity was an important part of the questionnaires as there was a lot of personal information, statements and attitudes involved. However, being anonymous also turned out to be a challenge as it was the aim to look at the development over time. Therefore, it was important to be able to see which respondents took part in all three questionnaires to see what developments they were going through.

To accommodate this challenge, a system with inspiration from another study has been used (Ebbensgaard, Jacobsen & Ulriksen, 2014). Here, the challenge was bypassed by asking participants to use the same code in each questionnaire. The code they used was the participants two first and two last digits of their social security number, which they all wrote down:

DD.MM.YY - XXXX

While this code is sufficiently personal for people to remember it, the likelihood of duplicates is sufficiently small. Although the information is part of their social security number, it is so small a part of information that it could not be used in other contexts of abuse. This was important to point out to the participants to not make them insecure about the system. The system was also a good way to collect information about the participants' gender without asking them directly, since the last two digits of social security number indicate the gender of the person (odd for men, equal for women).

The first data collection

The first data collection was carried out respectively on 28/8-2018 by one of the two NV classes and on 29/8-2018 by the other NV class.

The collection on 28/8-2018 was carried out from 8:45 am. to 9:45 am. during the contact persons NV teaching. The procedure was to have the contact person explain to the students what

was going to happen in their teaching. Thereafter, I talked for 5 minutes about what my study was about and how to fill out the questionnaire. Then the questionnaires were distributed to the students where they spent the next 15 minutes filling them out. The teacher and I were present in the room all the while. The students were grouped at tables of approx. six students as during their ordinary classes. Some students had questions regarding the questionnaire along the way that I answered. All 31 students present responded to the questionnaires. The interviews were made in the subsequent break in available rooms. At the start of the NV teaching, the students made the announcement of who were interested in being interviewed.

The collection on 29/8-2018 was carried out from 13:55 pm. to 15:25 pm. in the contact persons NV teaching of the other class than the day before. The procedure was the same as the data collection used the day before. As the contact person explained to the students what was going to happen in their teaching I would again be presenting for 5 minutes what my study was about and how to fill out the questionnaire. When the questionnaires were handed out to the students, they spent the next 15 minutes filling them out. The teacher and I were present in the room meanwhile. The students were grouped at tables of approx. six students as they would be during their ordinary classes. Some students had questions about the questionnaire along the way that I answered. All 30 students present responded to the questionnaires. Having experience from the day before, where not as many interviews were carried out as desired, a new strategy was chosen. Thus, in cooperation with the contact person, the students were given the opportunity during their teaching, to leave the teaching to be interviewed. This was done in the hallway in front of the classroom. The hallway was empty because of the teachings. After each interview, the interviewed student sent out a new student who agreed to be interviewed. This strategy turned out to be more effective in terms of getting more interviews in the available time. Therefore, this strategy was also chosen in the subsequent data collections.

The reason this data collection was necessary at the start of the Intro Course was partly the desire to capture the students' impression of NV in the beginning, but also because the students' memory about their geography lessons in primary school was so close to their actual experience of them.

The second data collection

The second data collection was carried out on 27/9-2018 by the two same NV classes as at the first collection. In these modules, students were taught by teachers other than the contact person as they were taught other topics than during the first data collection.

The collection of the first NV class on 27/9-2018 was carried out from 10:00 am. to 10:45 am. in NV teaching. Since it was the intention to collect data at the end of the students' NV course, a compromise had to be made in relation to the time frame for the collection, as the both NV classes that participated in the study had their last NV course teaching at the same time. Then the model for this collection was such that the first half of the module was dedicated to one NV class and the other part to the other NV class. The procedure was such that the teacher explained to the students what was going to happen in their teaching, then I summed up for 5 minutes about what the study was about and how to fill out the questionnaire. Then the questionnaires were handed out to the students, and they spent 15 minutes filling them out. The teacher and I were present in the room all the while. The students were grouped at tables of approx. six students as they would be during their ordinary classes. Some students had questions about the questionnaire along the way that I answered. All 31 students present responded to the questionnaires. However, there were three new students present at this gathering who were not present at the first gathering. Likewise, three students were missing from the first collection, who were not present at this gathering.

The collection of the other NV class on 27/9-2018 was carried out from 10:45 am. to 11:30 am. in NV teaching. The procedure was such that the teacher explained to the students what was going to happen in their teaching, then I summed up for 5 minutes about what the study was about and how to fill out the questionnaire. Then the questionnaires were handed out to the students, and they spent the next 15 minutes filling them out. The teacher and I were present in the room meanwhile. The students sat at tables of approx. six students as they would during their ordinary classes. Some students had questions about the questionnaire along the way that I answered. All 30 students present responded to the questionnaires. However, there were three new students present at this gathering who were not present at the first gathering. Likewise, three students were missing from the first collection, who were not present at this gathering.

The interviews proceeded just like last time, where the students could get out in the middle of the teaching and be interviewed. However, the difference from last time was both data collections were to be collected in the same teaching module. Due to this, there were less time for interviewing of each NV classes compared to the first collection. Fortunately, the classrooms for the two NV classes were right next to each other, so no time was taken from the collection at that expense. However, not that many interviews were collected from this collection as in the first. The reason why the data collection was being carried out at the end of the NV course was to get the most authentic impression of the student's experiences of the NV course.

The third data collection

The third data collection was carried out respectively on 12/11-2018 in a physical geography lesson of one of two completely newly started principle of study course classes, and on 13/11-2018 of the newly started principle of study course class.

The collection on 12/11-2018 of the first principle of study course class was carried out from 13:55 pm. to 14:40 pm. in the physical geography teaching. The procedure was such that the teacher explained to the students what was going to happen in their teaching, then I summed up for 5 minutes about what the study was about and how to fill out the questionnaire. Then the questionnaires were handed out to the students, and they spent the next 15 minutes filling them out. The teacher and I were present in the room all the while. The students were grouped at tables of approx. six students as they would be during their ordinary classes. Some students had questions about the questionnaire along the way that I answered. All 20 students present responded to the questionnaires.

The collection on 13/11-2018 of the second principle of study course class was carried out from 14:40 pm. to 15:25 pm. in the physical geography teaching. The procedure was such that the teacher explained to the students what was going to happen in their teaching, then I summed up for 5 minutes about what the study was about and how to fill out the questionnaire. Then the questionnaires were handed out to the students, and they spent 15 minutes filling them out. The teacher and I were present in the room all the while. The students were grouped at tables of approx. six students as they were during their ordinary classes. Some students had questions about the questionnaire along the way that I answered. All 17 students present responded to the questionnaires.

The interviews proceeded just as with the first collection of the second NV class.

The reason why the collection was carried out at this point was to let the students experience how a typical physical geography teaching progressed, so that they could have built an attitude towards it.

Student's feelings for a subject

In all three questionnaires the students are asked about their feelings in relation to a given subject. This was to see if there was any development in their feelings through the transition. A hidden quantification of their responses to an attitude question was used to achieve this. The students had to put a mark on an open scale ranging from: "don't like the subject at all" to "liked the subject a lot". In the middle of the scale, a line was set to indicate a neutral category. This was

developed so the students could clearly state whether they were predominantly positive or negative towards the subject (Hansen & Andersen, 2009). This open scale was subsequently translated into a closed ordinal scale with a clear hierarchy in the form of five categories ranging from: "don't like the subject at all ", "did not like the subject", "no attitude toward the subject", "liked the subject" and "liked the subject a lot". The open scale was to give the respondents an easy and clear way to give a simple answer to a possible nuanced topic.

The further work done on the students' answers is an interpretation I have made. This interpretation was easy in situations where the students gave a clear answer, as indicated in figure 4 to 6. Here, it was easy to place their responses in categories as either predominantly negative, neutral or predominantly positive.

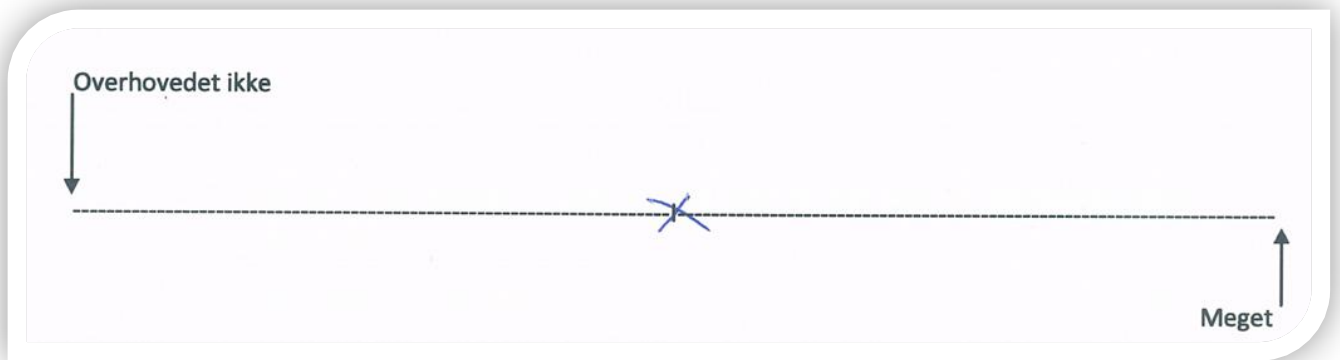


Figure 4. An example of a clear neutral answer.

Translation of figure 4:

Don't like it at all.....Like it a lot

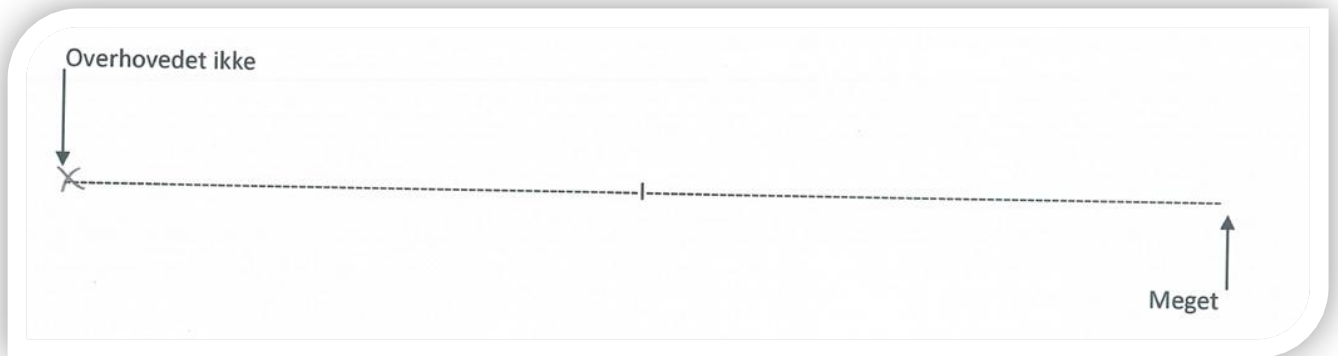


Figure 5. An example of a clear negative answer.

Translation of figure 5:
 Don't like it at all.....Like it a lot

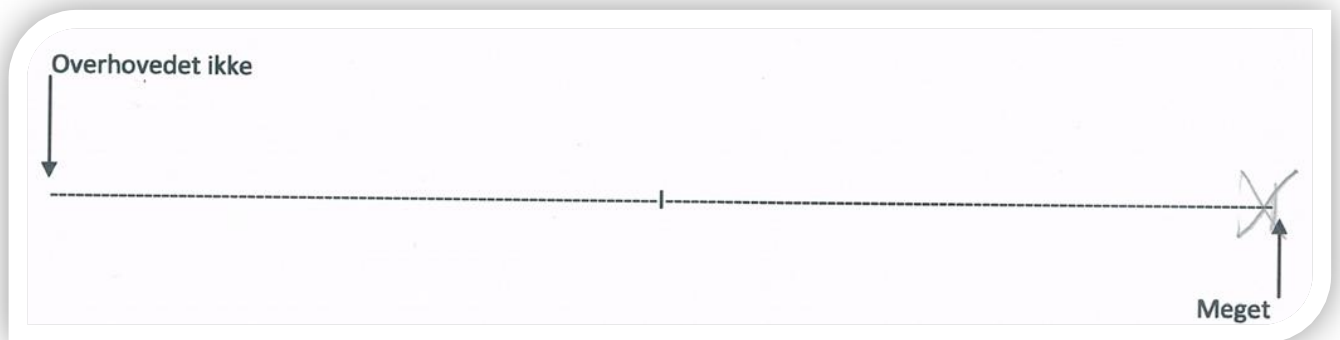


Figure 6. An example of a clear positive answer.

Translation of figure 6:
 Don't like it at all.....Like it a lot

It was more challenging with the categories "did not like the subject" and "liked the subject" which were the categories between the neutral category and the two extreme ends. Here an additional interpretation was needed. In examples like in figure 7 and 8 the student's responses are close to the neutral category, nevertheless their answers were placed in "did not like the subject" and "liked the subject". This is because even though their response is very close to neutral, the respondents have nevertheless taken a position on whether they are more or less positive or negative towards the subject.

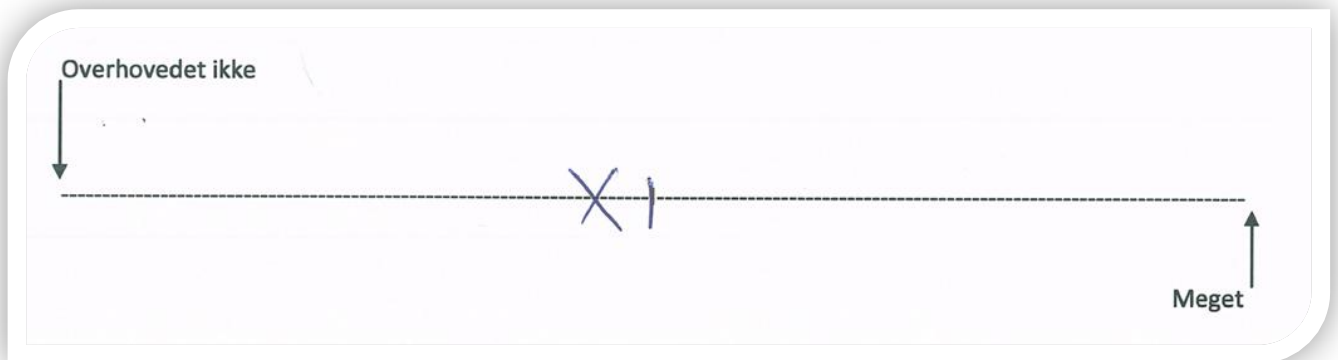


Figure 7. An example of a negative answer.

Translation of figure 7:
 Don't like it at all.....Like it a lot

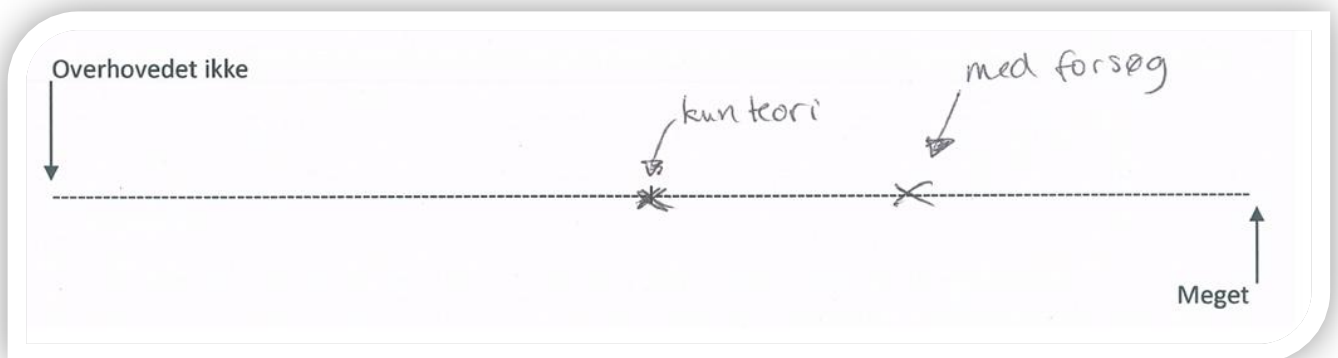


Figure 8. An example of a positive answer.

Translation of figure 8:
 Don't like it at all.....Like it a lot

In other cases I had to look at what responses the respondents had given before marking the scale to assess whether they should put in "don't like the subject at all" or "did not like the subject" and "liked the subject" or "liked the subject a lot". As indicated from figure 9 and 10 the mark in the two examples is very alike put on the scale, but here I chose to put the answer from figure 9 in the category "like the subject" since in the two previous answers given both is positive and negative answers. Whereas, in the example in figure 10 which I have placed in the category "liked the subject a lot" only two positive answers were given in the two previous questions. Figure 11 shows an example where I chose to place the students answers in "liked the subject a lot" since the two previous answers are predominantly negative.

Hvad kunne du godt lide ved din geografiundervisning i grundskolen?

Jeg kunne godt lide at lave opgaver og spørgsmål selvstændigt

Hvad kunne du ikke lide ved din geografiundervisning i grundskolen?

Vores lærer skulle bruge mere tid på selv at forklare ting, end lade en video eller spørgsmål forklare det.

Hvor glad var du for geografi som fag i grundskolen? (sæt et x)

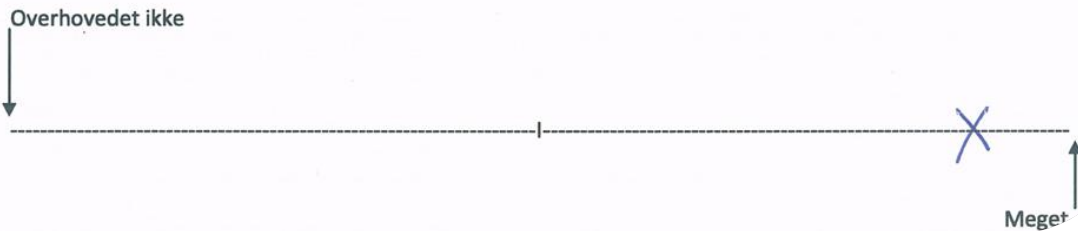


Figure 9. An example of a positive answer that gets a lesser positive grading due to previous answers.

Translation of figure 9:

1. What did you like about the teaching in geography in primary school?
 - a. I like to do assignments and questions independently
2. What did you not like about the teaching in geography in primary school?
 - a. Our teacher would spend more time explaining things than a video or question would do

Don't like it at all.....Like it a lot

Hvad kunne du godt lide ved din geografiundervisning i grundskolen?

læreren var god

Hvad kunne du ikke lide ved din geografiundervisning i grundskolen?

det var fint

Hvor glad var du for geografi som fag i grundskolen? (sæt et x)

Overhovedet ikke

↓

-----|-----x-----↑

Meget

Figure 10. An example of a positive answer that gets a high positive grading due to previous answers.

Translation of figure 10:

1. What did you like about the teaching in geography in primary school?
 - a. The teacher was good
2. What did you not like about the teaching in geography in primary school?
 - a. It was fine

Don't like it at all.....Like it a lot

Hvad kunne du godt lide ved NV undervisningen?

Nej

Hvad kunne du ikke lide ved NV undervisningen?

meget af det er ligegyldigt

Hvor glad har du været for NV undervisningen? (sæt et x)

Overhovedet ikke

↓

↑

Meget

Figure 11. An example of a negative answer that gets a high negative grading due to previous answers.

Translation of figure 11:

1. What did you like about the teaching in NV?
 - a. No
2. What did you not like about the teaching in NV?
 - a. Much of it didn't matter

Don't like it at all.....Like it a lot

The interviews

The interviews that were made in connection with the questionnaire collection were made to get a deeper insight into the answers that the respondents gave in their questionnaires. The interviews were semi-structured interviews (Kvale & Brinkmann, 2009), which consisted of the same questions as in the questionnaire (examples of the interview guides can be seen in appendix 4, 5 and 6), however with the possibility to ask more in-depth of some the answers that the respondents gave.

The selection of students for the interviews was done by asking at the beginning of the teaching, where the questionnaires were distributed in the classroom, which students wanted to be interviewed. Then a list was made with the students who were interested, and they were then interviewed individually or in pairs on a shift.

Thematic analysis

Thematic analysis is a method for identifying, analyzing and reporting themes and patterns in a qualitative data set (Braun & Clarke, 2006). This method consists of six phases (see table 2) where the user goes through different stages of the analysis. The phases are flexible where it is recommended that the user switch back and forth between the phases to get the best outcome of the method. It is also possible to use only some of the phases if it fits better with the layout of the study. Hereby, the phases must be understood more as a guideline and not as a rigorous approach. Themes and patterns in the dataset can be identified in two different ways, either in an inductive bottom up method, or a deductive top down method. Examples of these methods can be seen in the articles; Holmegaard, 2012 (1) and Holmegaard, 2012 (2). The difference between the two approaches lies in how well anchored the user is in already predetermined theory or themes. If the user tries to search, describe and analyze a dataset based on a particular theory or well established research question, then the deductive top down method is suitable. Conversely, if the user tries to search his data set for possible themes, and then put a theoretical explanation model on top of the result, it is instead an inductive bottom up method. In my study I used a bottom up approach to my dataset, as I did not know in advance, which themes were present in my dataset.

Table 2. Description of the six phases in a thematic analysis (Braun & Clarke, 2006).

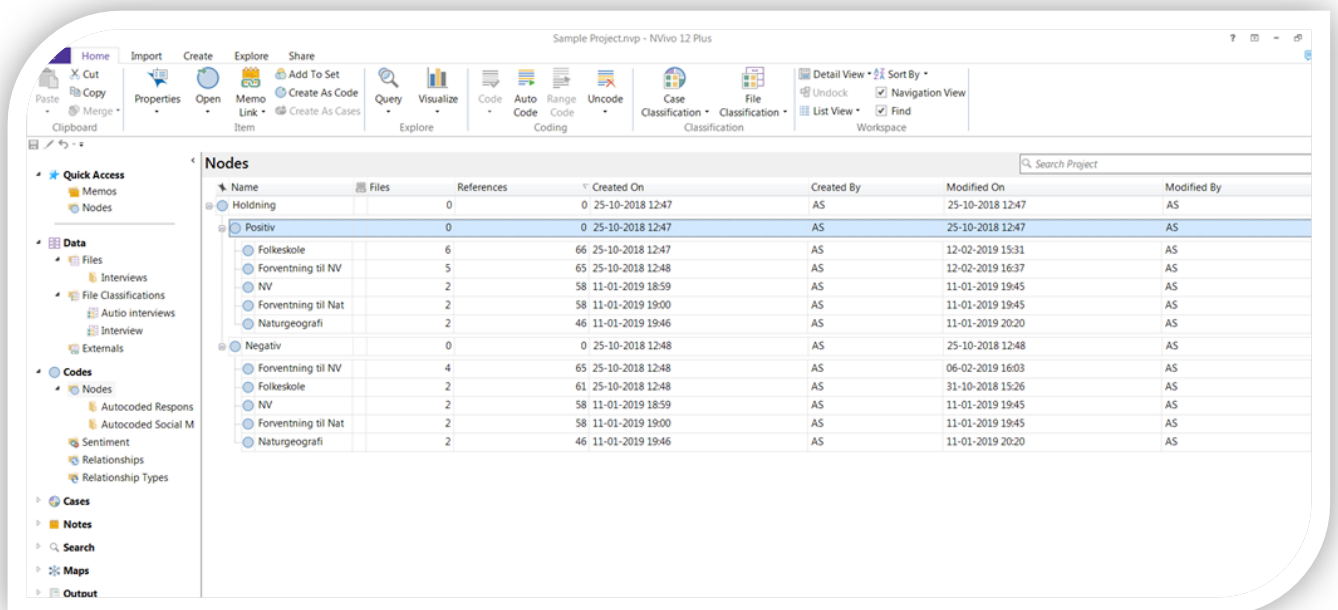
Phases	Description
1: Get to know the data	At this stage, the user acquainted him with the data set. This is done by reading or hearing all the data through. Relevant thoughts and possible themes are noted down.
2: Generates initial coding	In this phase, the user begins to encode quotes from the data assigned to the themes found in the first phase. Here, coding should be understood in the sense that each relevant quote is labeled with a keyword.
3: The generation of themes	In this phase, the user will group the keywords from the second phase into themes. Here, overall themes and possibly sub-themes will be created. It may also be useful to make a map/model/mind map of the internal relations of the themes.
4: Reconsider the themes	In this phase, the user reconsiders his themes. Are there enough data/quotes to back up a theme? Do quotes with the same keywords describe the same themes? Does the theme make sense in relation to the research question or the theoretical background used in the analysis? Should some of the themes be split or merged? Are the themes or data extracts representative and credible to the respondents? And more relevant questions.
5: Define and naming the themes	In this phase, the user looks at the themes found. They must be essential for the research question. They must be clearly defined. The data extracts under each theme should be enough uniform to back up the same theme. These are themes on which the analysis is to be based. The themes are reduced to a single word or phrase that also makes sense for the reader.
6: Reporting	At this stage, the user must use the found themes to tell a "story" from the data. The "story" must be backed up by the data extracts. Be consistent, coherent, logical and interesting for the reader. The result should not be descriptive, but concluding from an analytical work based on the thematic analysis and theoretical background.

Coding

The coding of the questionnaires and the interviews was done in the computer program NVivo 12. Here all the questionnaires were first digitized, then imported into the program, after which the coding could take place. Each answer in the questionnaires received a coding according to whether it was positive or negative, after which it received a coding in relation to which part of the transition it was involved.

After the coding had taken place, the analysis work could begin where themes in each category were found. After the themes were found, the interviews were listened to in order to find in-depth statements on the themes. This was also done in the NVivo 12.

The procedure for using the NVivo 12 was done according to a guide by Binderkranz & Andersen, 2011. Examples of the use of the program can be seen in figure 12, 13 and 14.



The screenshot displays the NVivo 12 Plus software interface. The main window shows a list of nodes under the 'Nodes' tab. The nodes are organized into two main categories: 'Positiv' and 'Negativ'. Each category contains several sub-nodes, such as 'Folkeskole', 'Forventning til NV', 'NV', 'Forventning til Nat', and 'Naturgeografi'. The table below represents the data shown in the screenshot.

Name	Files	References	Created On	Created By	Modified On	Modified By
Holdning	0	0	25-10-2018 12:47	AS	25-10-2018 12:47	AS
Positiv	0	0	25-10-2018 12:47	AS	25-10-2018 12:47	AS
Folkeskole	6	66	25-10-2018 12:47	AS	12-02-2019 15:31	AS
Forventning til NV	5	65	25-10-2018 12:48	AS	12-02-2019 16:37	AS
NV	2	58	11-01-2019 18:59	AS	11-01-2019 19:45	AS
Forventning til Nat	2	58	11-01-2019 19:00	AS	11-01-2019 19:45	AS
Naturgeografi	2	46	11-01-2019 19:46	AS	11-01-2019 20:20	AS
Negativ	0	0	25-10-2018 12:48	AS	25-10-2018 12:48	AS
Forventning til NV	4	65	25-10-2018 12:48	AS	06-02-2019 16:03	AS
Folkeskole	2	61	25-10-2018 12:48	AS	31-10-2018 15:26	AS
NV	2	58	11-01-2019 18:59	AS	11-01-2019 19:45	AS
Forventning til Nat	2	58	11-01-2019 19:00	AS	11-01-2019 19:45	AS
Naturgeografi	2	46	11-01-2019 19:46	AS	11-01-2019 20:20	AS

Figure 12. Example of the use of NVivo 12.

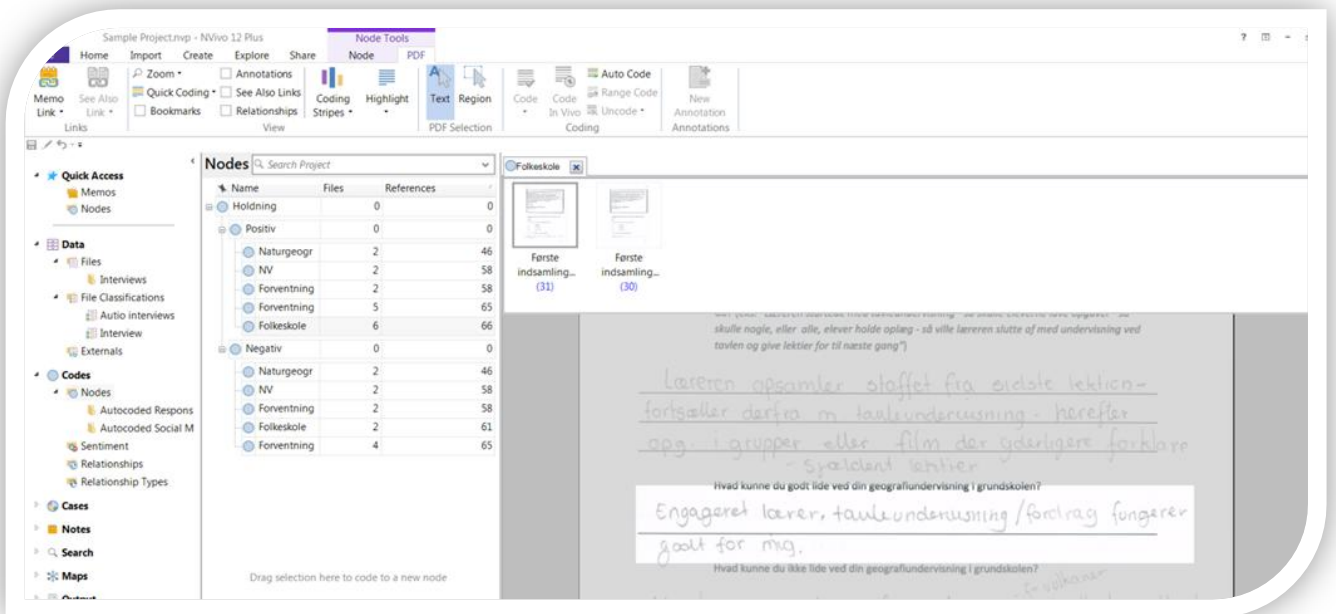


Figure 13. Example of the use of NVivo 12.

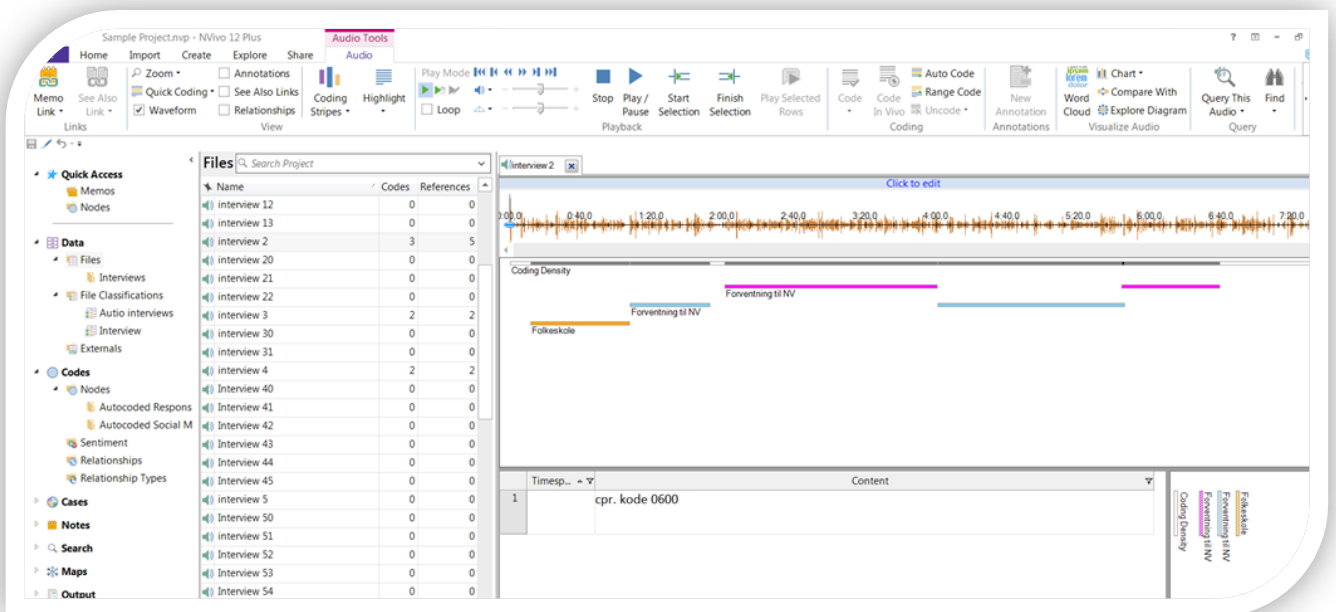


Figure 14. Example of the use of NVivo 12.

Verification of themes

As Braun and Clarke (Braun & Clarke, 2006) propose, it can be verifying for the themes in a thematic analysis if an impartial competent person finds the same themes in the dataset as the user himself to examining for inter-subjectivity (Hansen & Andersen, 2009). I have completed an attempt for such verification (test) in my thesis by having a fellow student at Department of Science Education (Institut for Naturfagenes Didaktik) (IND) read through some selected answers from the questionnaires from the respondents in my dataset.

The fellow student, a biology student, agrees to act as an impartial person in my test. The test person (TP) at the time of the test only had a superficial knowledge of the content of my thesis and further did not know the themes I had found in my thematic analysis and which I wanted to verify. Also, the test person had not seen the data set which all together made the TP a competent candidate for the test.

The aim of the test was to see if the themes I had found in my thematic analysis for each of the six parts of the transition (see table 3) could be verified by an impartial person. For each part of the transition I had chosen a central theme (see table 3) which I wanted to be verified.

Tabel 3. Themes there was tested for verification by an impartial test person.

Questions	Central theme to be verified
<i>What did students like about the geography teaching in primary school?</i>	The teacher was good
<i>What did students not like about the geography teaching in primary school?</i>	The teacher was bad
<i>What did students like about the teaching in NV?</i>	Group work/Experiments
<i>What did students not like about the teaching in NV?</i>	The intensity of the teaching
<i>What did students like about the teaching in Physical geography?</i>	The visual display of the material
<i>What did students not like about the teaching in Physical geography?</i>	Lack of interest for the subject

Method for verification

There were a total of $20 \times 6 = 120$ responses that were selected for the TP, which the TP had to read through and then make his suggestion for possible themes. There were 20 responses for each part of the transition, of which 10 of these were someone who pointed to the central theme of the transition part. The last 10 were a mixture of some who partially pointed to the theme, or not at all. This was done to get a verification of the themes that I wanted to work with. The reason why some of the responses, which only partially pointed to the themes, were chosen was to have someone to discuss these with, and to see if the TP also thought they could fit under the same theme. The last responses that were included, which did not have anything to do with the theme, were used to have a consistency of 20 responses in each transition part, as well as it should not be too obvious which themes that were tested.

The test took approx. 40 minutes, where the TP had access to a computer with the program NVivo12, where the 120 responses that the TP should test for were available. The responses were located in a project folder where the TP only had access to the answers that were selected for the TP. While the TP examined the answers, the TP took notes for the possible themes that TP found. These notes can be seen in appendix 7 and there is a presentation of them in the later "Results" chapter.

After the TP had examined all the answers, we had a session together, where the TP presented his notes to me and what considerations he had made about possible themes. It was only afterwards that it became known to the TP which themes I wanted to be verified. Afterwards, we had a discussion on how clearly the themes were presented in the data set. This conversation lasted about 30 minutes. The reason why I first chose to present to the TP what themes I wanted to be verified after the TP had presented his themes was for the TP to maintain his objectivity throughout the entire process.

The quantitative data analysis

The data analysis of the quantitative data has been done in Microsoft Excel, where it has been tested for whether there was significant difference between the different parts of the transition. In total, three different statistical tests have been used; Match pairs test, Wilcoxon matched pairs signed ranks test and Man Whitney u test (Wilcoxon rank sum test) (McGrew & Monroe, 2009). This was necessary because the data had different levels of measurements, and consisted of both paired and independent datasets. All tests were performed with a significance level of 5%.

One of the goals of the thesis is to look at the transition from primary school Geography, through NV, to Physical geography in high school. From the data set that was collected, this can be done in two different ways:

The first method is to look at the entire dataset with all 104 responses from all three collections. This dataset consists mainly of two groups of students: the group that participates in the first two collections and the group that participates in the third collection.

The second method is to look at the students who have answered all three questionnaires and look at the transition they have undergone. This result can then be compared with the result in the first method. In order for this method to be carried out, students who had answered all three questionnaires in all three data collections are needed to be located. Then their data must be extracted from the original data set. Then, a correction must be made in the result from the first method, since there are data that have been removed from the data set. Tests can then be made on both datasets and compared. In the case of this data collection, only eight students responded to all three questionnaires.

Both methods are used in the thesis. The results of the tests can be seen in the "Results" chapter.

Results

The students' positive and negative experiences with the teaching

In all three questionnaires the students were asked what they liked and what they did not like about the teaching based on their current teaching, the teaching they just have had or were going to have. The questionnaire was set up in such a way that they should make a positive or negative statement, if they had one, about the teaching.

Hvad kan du godt lide ved Naturgeografiundervisningen?

Hvad kan du ikke lide ved Naturgeografiundervisningen?

Figure 15. An example of two questions in one of the questionnaires.

Translation of figure 15:

1. What do you like about the teaching in Physical Geography?
2. What do you not like about the teaching in Physical Geography?

This was to gain insight into which factors that the students found to be important to create good teaching. After collecting the questionnaires, some interviews were conducted with some of the same students. Here the students were asked for some of the same questions as in the questionnaires, in a semi-constructed interview. This was to get a more in-depth explanation of the answers that the students had given in the questionnaires.

After all the data collection had been gathered, a thematic analysis of the student responses was carried out. This was done for several reasons:

1. To get an overview and knowledge of the data
2. To code and sort the data
3. To find essential themes for answering the research question

The thematic analysis was done using the NVivo 12 program, which can help with the handling of qualitative data.

The result of the thematic analysis can be seen in table 4.

Table 4. The result of the thematic analysis. The themes that are highlighted were the themes that were most prominent.

Thematic analysis Themes deduced from the students answers to what is, or have been, positive and negative in their subjects?		
Primary school geography	NV	Physical geography
Positive <ul style="list-style-type: none"> • The teacher was good • The political angle • The content/topics • Student work/independent- and group work • The difficulty and pace was appropriate Negative <ul style="list-style-type: none"> • The teacher was bad • Too few lessons • Monotony/boring/lack of interest • Blackboard teaching • Too high degree of difficulty 	Positive <ul style="list-style-type: none"> • The experiments • Group work • Subject knowledge • The theory Negative <ul style="list-style-type: none"> • Too high intensity • The scope of literature • Blackboard teaching (too much, too difficult, too boring) 	Positive <ul style="list-style-type: none"> • The visual display of the material (videos and animations) • Topics and the teaching materials • Group work • An understanding of the Earth's structure and functioning (the topics) Negative <ul style="list-style-type: none"> • Too boring/monotonous and lack of interest • Too high degree of difficulty/too high intensity • Blackboard teaching

It became obvious during the analysis that for each subject there was found to be a great difference in what reasons the students had given for their feelings for the subject.

There were also some of the responses that could be gathered under some more general themes.

These themes can be seen in table 4. The themes are shown in a ranking of how frequently they appear in the dataset. Among these themes, some were more frequent, representative and essential of the research question than others. These are highlighted in the table. The more prominent themes were:

For primary school geography:

Positive:

- **The teacher**

Negative:

- **The teacher**

For NV:

Positive:

- **The experiments**
- **Group work**

Negative:

- **Too high intensity**

For PG:

Positive:

- **The visual display of the material (videos and animations)**

Negative:

- **Too boring/monotonous and lack of interest**

These themes have also been the basis for the further work.

Test for inter-subjectivity

As work has been done on the analysis and interpretation of qualitative data in the thesis, it would be very unlikely not to experience some degree of subjective in the interpretation and display of the data. However, this can be tested for by looking at whether there is inter-subjectivity. Such tests have been done and the result can be seen in the table 5.

Table 5. Results of the verification test (original notes can be seen in appendix 7).

Questions to the students	Central theme to be verified	Themes found in the test
<i>What did the students like about the geography teaching in primary school?</i>	The teacher was good	<ul style="list-style-type: none"> • A good teacher <ul style="list-style-type: none"> ○ The teaching method <ul style="list-style-type: none"> ▪ Independent work ▪ Blackboard teaching and review of the teaching material
<i>What did the students not like about the geography teaching in primary school?</i>	The teacher was bad	<ul style="list-style-type: none"> • A bad teacher <ul style="list-style-type: none"> ○ The teaching method ○ Blackboard teaching
<i>What did the students like about the teaching in NV?</i>	Group work/Experiments	<ul style="list-style-type: none"> • Group work • Experiments
<i>What did the students not like about the teaching in NV?</i>	The intensity of the teaching	<ul style="list-style-type: none"> • Intensity <ul style="list-style-type: none"> ○ Too many experiments ○ Too difficult and monotonous
<i>What did the students like about the teaching in Physical geography?</i>	The visual display of the material	<ul style="list-style-type: none"> • Video + animations + models • Group work • The topics
<i>What did the students not like about the teaching in Physical geography?</i>	Lack of interest for the subject	<ul style="list-style-type: none"> • Boring <ul style="list-style-type: none"> ○ The theory ○ Too high difficulty ○ Too monotonous

In the right column, the themes found by the test person are found. They are ranked according to the frequency in the data set. It is the test person who has named the themes. I found a large overlap between the themes in (table 5), and the themes I found (table 4). Therefore, it could be concluded that there, to some extent, is found to be inter-subjectivity in the interpretation of the data set.

Changes in how the students feel about subjects throughout the transition

Alongside the collection of the qualitative data, quantitative data were also collected on the same students. This was to see if there were any changes in "how the students feel about subjects throughout the transition". The quantitative data could also provide answers as to whether there had been a change in the amount of group work in the teaching from primary school geography and NV (Basic Science Course) in high school. This was one of the themes that were derived from the thematic analysis. Data was also collected quantitatively on other parameters in the data collection, as it was not known from the start which themes would be relevant for the thesis. As it became known during the analysis which themes were to be worked on, no work or further treatment was made on these parameters.

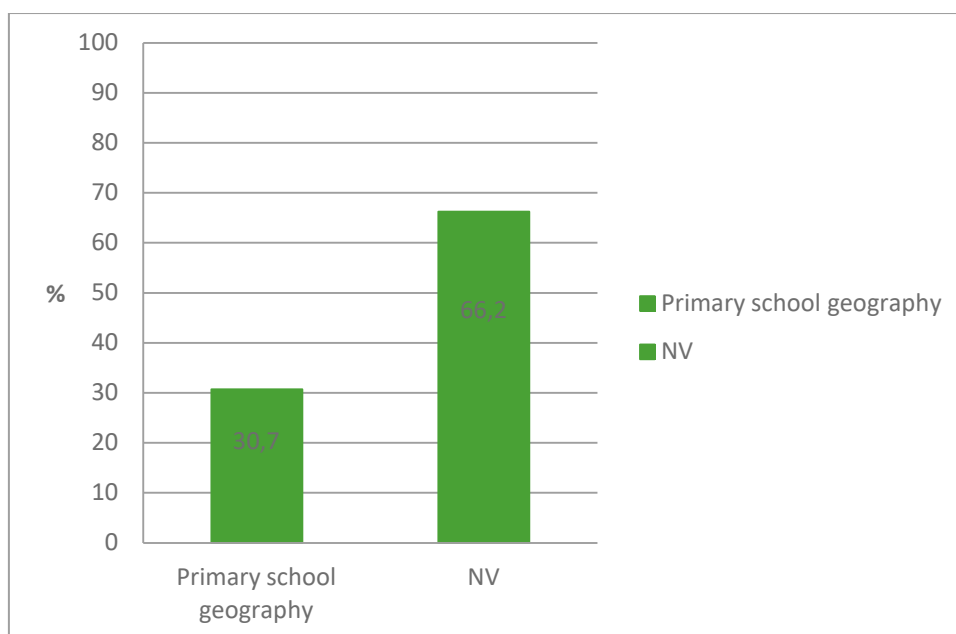


Figure 16. The proportion of the teaching that consists of group work according to the students.

One of the parameters that the students thought of as a positive aspect of the NV teaching was the group work. One aspect that was not mentioned that frequently in their responses to which positive aspects that were at primary school geography. Results from the students' questionnaire responses indicate that students have significantly more group work in NV than they had in primary school geography. However, it is worth noting that the figures are based on the students' own reporting. Therefore, there is the possibility of an over- or under estimation.

In figure 17 about what the students felt about the subjects in the transition. There are no significant changes between the subjects, neither in comparison of primary school geography with NV or Physical Geography, or NV and Physical Geography.

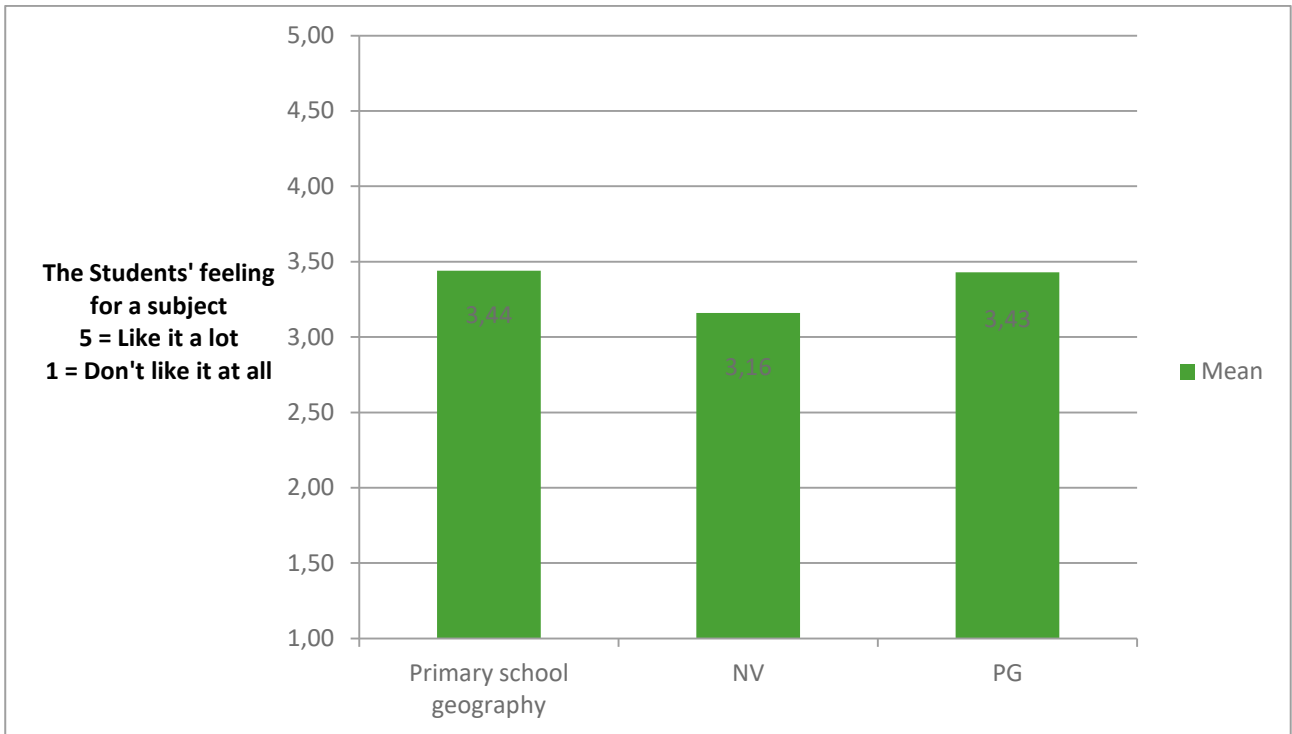


Figure 17. Students' feeling for subjects in the transition.

With an including of the students' expectations about, how they expect to feel for NV and Physical Geography before they started the course (figure 18), there is found a significant change in their feeling from "primary school geography" to "expectation for their feeling for NV", where there is a significant fall, as well as from their "expectation to their feelings for Physical Geography (PG)" and their actual "feeling for Physical Geography (PG)", where there is a significant increase.

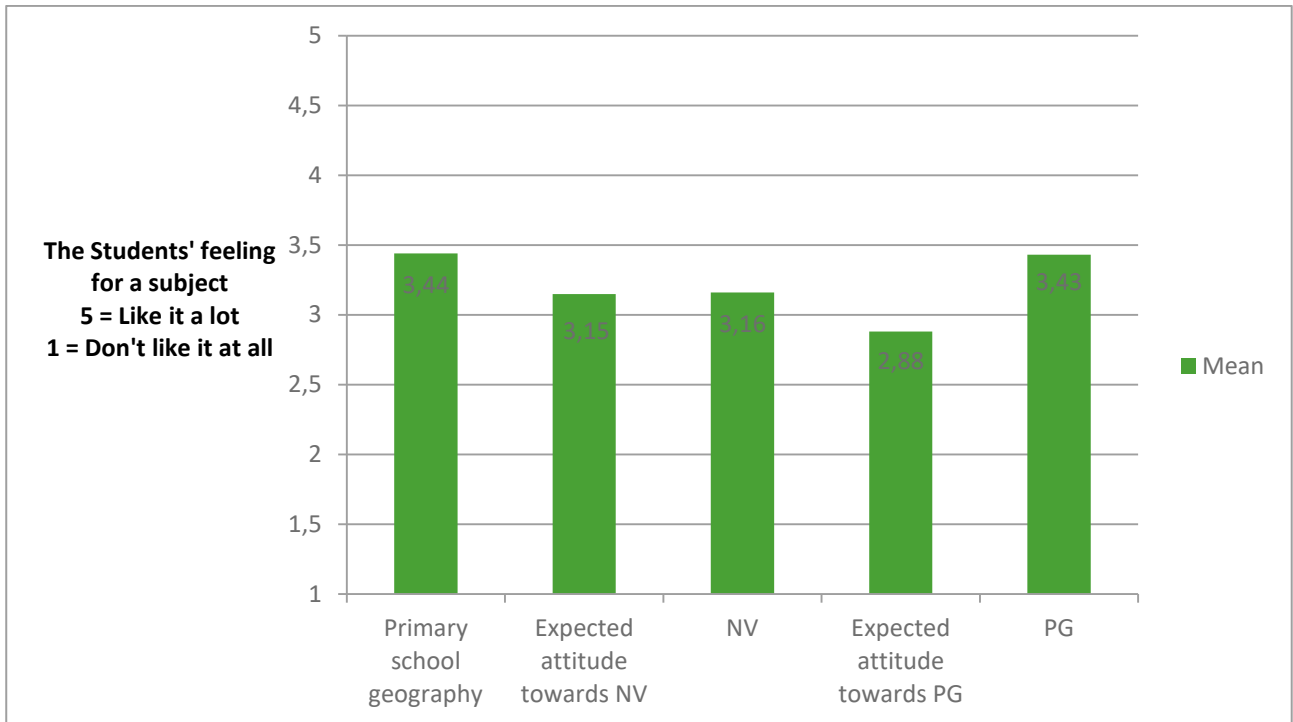


Figure 18. Students' feeling or expected feelings for subjects in the transition.

It was not possible to follow the same students throughout the transition due to the new Intro course that was introduced in STX as part of the 2016 High School Reform. With this introduction the Intro course was shortened from six to three months, and where the introduction of Intro course classes was introduced. Here, the students do not begin in principle of study course (studieretning) classes until after the Intro course. Therefore, it was not possible from the beginning of this study to locate which students were going to have Physical Geography. As a result, two NV teams were followed with the objective that some of these students would begin in a principle of study course with Physical Geography subsequently. After all three data collections, eight of the 104 respondents were found to have answered all three questionnaires. Figure 19 shows how these eight students' feelings for the subjects during the transition are compared with the remaining students, who have only responded to one or two questionnaires.

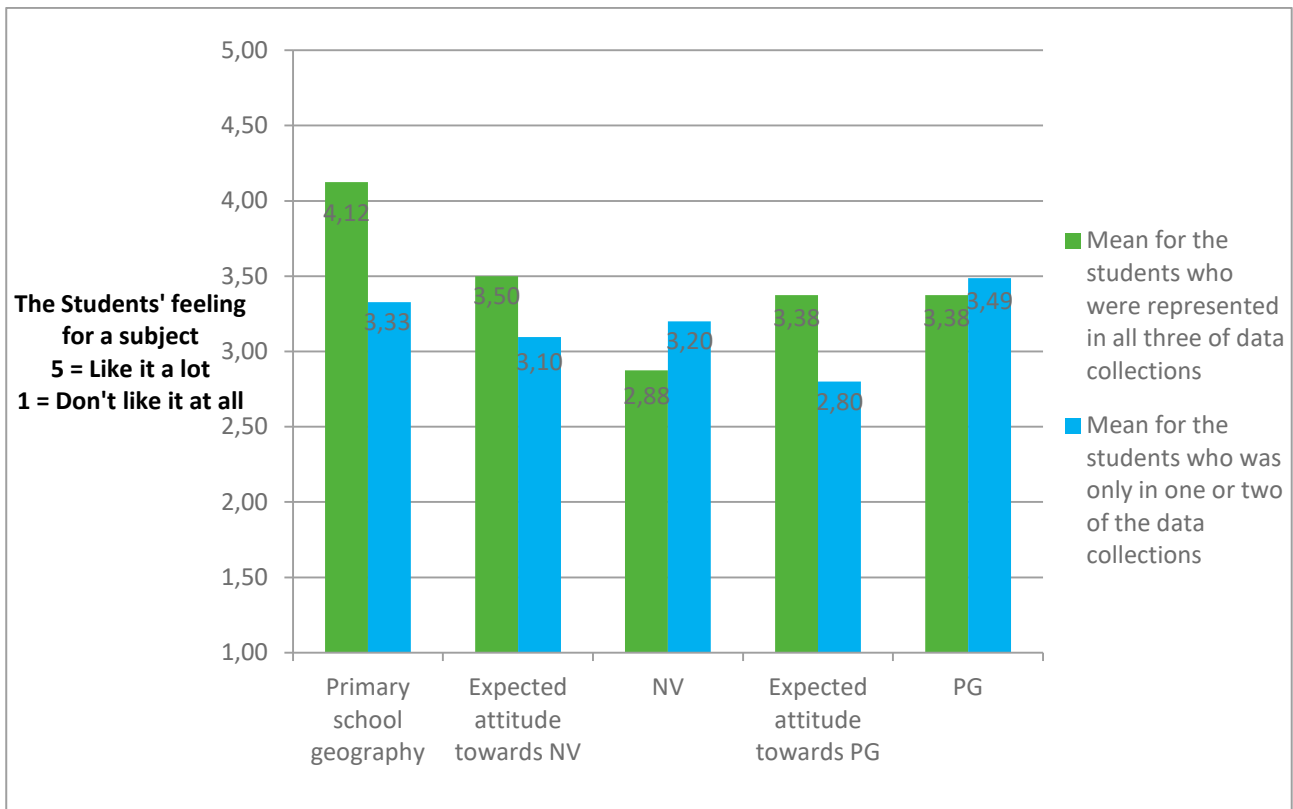


Figure 19. The feeling or expected feelings for subjects in the transition for the students who were only in one or two of the data collections, and the students who were represented in all three of the data collections feeling for subjects.

By comparing the responses from the students who participated in all three data collection with the responses from the students, who were only in one or two of the collections, it can be found, that there is no significant difference between the two groups' feelings in relation to the subjects NV and Physical Geography (PG). However, there is a significantly better feeling for the subject primary school geography among students who participated in all three collections than students who only participated in one or two of the collections, which were also students who did not follow a principle of study course with Physical Geography (PG).

The changes in the students' feelings for the subjects through the transition for the students who participated in all three data collections, a significant decrease in their feelings for the subjects through each step in the transition can be seen till the step between "their feelings for NV" and "their expected feelings for Physical Geography (PG)", where there is a significant increase in their feelings for the subject. In the step between the students' "expected feelings for Physical Geography (PG)" and their actual "feelings for Physical Geography (PG)", there is no significant change.

Table 6. Overview of whether there was a significant change or not in the transitions.

		A significant change	No significant change
The proportion of the teaching that consisted of group work according to the students in primary school geography	The proportion of the teaching that consisted of group work according to the students in NV	X	
The students' enthusiasm for primary school geography	The students' enthusiasm for NV		X
The students' enthusiasm for primary school geography	The students' enthusiasm for Physical Geography (PG)		X
The students' enthusiasm for NV	The students' enthusiasm for Physical Geography (PG)		X
The students' enthusiasm for primary school geography	The students' expected enthusiasm for the NV	X	
The students' expected enthusiasm for the NV	The students' enthusiasm for NV		X
The students' enthusiasm for NV	The students' expected enthusiasm for the Physical Geography (PG)		X
The students' expected enthusiasm for the Physical Geography (PG)	The students' enthusiasm for Physical Geography (PG)	X	
The students' enthusiasm for primary school geography	The students', who were represented in all three studies, enthusiasm for primary school geography	X	
The students' enthusiasm for NV	The students', who were represented in all three studies, enthusiasm for NV		X
The students' enthusiasm for Physical Geography (PG)	The students', who were represented in all three studies, enthusiasm for Physical Geography (PG)		X

The students', who were represented in all three studies, enthusiasm for primary school geography	The students', who were represented in all three studies, enthusiasm for NV	X	
The students', who were represented in all three studies, enthusiasm for primary school geography	The students', who were represented in all three studies, enthusiasm for Physical Geography (PG)	X	
The students', who were represented in all three studies, enthusiasm for NV	The students', who were represented in all three studies, enthusiasm for Physical Geography (PG)	X	
The students', who were represented in all three studies, enthusiasm for primary school geography	The students', who were represented in all three studies expected, enthusiasm for the NV	X	
The students', who were represented in all three studies, expected enthusiasm for the NV	The students', who were represented in all three studies, enthusiasm for NV	X	
The students', who were represented in all three studies, enthusiasm for NV	The students', who were represented in all three studies, expected enthusiasm for the Physical Geography (PG)	X	
The students', who were represented in all three studies, expected enthusiasm for the Physical Geography (PG)	The students', who were represented in all three studies, enthusiasm for Physical Geography (PG)		X

Table 6 shows the cases in which there are no significant or significant changes between two parameters or steps in the transition or between different student groups' feelings for a subject.

Discussion

Discussion of the method

The use of the mixed method

The use of mixed method is not thoroughly described in this thesis as it used as an approach to study rather than an actual method. However, it is important when integrating qualitative and quantitative methods in a study, as done in the mixed method, that one still works within the original paradigms of the individual methods to maintain the standards originally intended for them (Taylor , 2014).

Verification of Themes

Inter-subjectivity was tested for in the thematic analysis. This was done by an impartial test person, but on a selected sample of the entire dataset. This was a choice I made to reduce the working time it will take to review all the data. Thereby, there is a very clear influence from my side when the data extraction was selected. Therefore, it is not a one-to-one verification of the thematic analysis, but rather a verification of the themes that was deemed interesting to work with.

Thematic analysis

Pros: The method is relatively easy to access and learn. There is no need for a major literature search or theoretical cover before use, especially not by the more deductive bottom up approach chosen for this thesis. The method can also help with the literature search and the theoretical coverage, as the themes help to focus the search. Therefore, it can easily be used by users with little to no experience with work and analysis of qualitative data. The method is also a good way to organize larger data sets and to do extractions from it, which is then easily accessible to readers. The method makes it easy for readers to understand and access underlying considerations the user of the analysis has done in his work, thereby understanding what underlies the presented results. The method is also flexible and can be taken into use on a level as the user considers necessary.

Cons: Thematic analysis as a method is not very well described in the literature and can therefore lack the same recognition that is found with other methods (Braun & Clarke, 2006). Another thing that the user cannot avoid is having some degree of subjective influence on the result. This is not necessarily a mistake, but an aspect the user must be aware of. It highly unlikely that the user's narrative is free from influence in the production of themes in studies

based on qualitative data, therefore, it is important that the user makes the reader aware of the theoretical background on which the themes are selected. This can be done in different ways. The most important thing is, however, that the reader is made aware of this and gets insight into the selection process of the themes. It may be difficult to imagine that another user would come up with exact same results, as qualitative data are not as easy to standardize as with quantitative data, and will always be affected to some extent by the user himself. Hence, it is possible to unveil to the reader which theoretical background that rooted for the argumentation, through which to strengthen the validity of the results. Clarity and transparency are the keywords here. The user has an active role in identifying themes and patterns in the study. It is important that the user acknowledges this dilemma and recognizes it as "decisions" in the work. There are some decisions regarding the use of thematic analysis that must be done and defined to the readers. These decisions must be made before the analysis work. However, these can change during the course of the work (Braun & Clarke, 2006).

Discussion of the results

In the thematic analysis of the data set, seven central themes were found:

Table 7. The central themes from the thematic analysis.

Primary school geography		NV		PG	
Positive	Negative	Positive	Negative	Positive	Negative
The teacher	The teacher	The experiments and group work	Too high intensity	The visual display of the material (videos and animations)	Too boring/monotonous and lack of interest

Two interesting trends were found in the quantitative study:

1. There is a difference in the students' feelings for a given subject and their expectations for the next subject.
2. In the group of students who participated in all three data collections, there is a decrease in their feelings from primary school geography and to physical geography (PG) in high school, where the most prevailing decrease occurs in NV.

In the following chapter these findings will be discussed individually or in pairs in order to see how they can help make the transition from geography in primary school, through NV, to physical geography (PG) in high school better for the students. The findings will also be compared with similar findings from previous studies. All quotes are from interviews from this study. To get the full context of the quotes see appendix 8, where the original quotes are highlighted in transcripts of the interviews.

The relationship between the students and the teacher

Several of the students' questionnaire- and interview responses stated that the relationship with their teacher had a great impact on their attitude toward geography in primary school. This was regardless of whether it was a positive or negative relationship. The relationship with the teacher, and thereby the students' attitude toward the subject, were based on several things. Some of the students build their relationship with the teacher through the didactic work the teacher did in his teaching, as can be seen in the example below.

Student A: from an interview at the beginning of the NV course

"It (elementary school geography) was fun because we had a really good teaching. He (the teacher in primary school) explained it perhaps just with such words that make a little more sense. Or when he put it into a much more everyday language. Where here they say or just use all those fancy words, and they count on that we know what they mean. And we have no idea what it actually means."

Here it can be perceived that the student remembers the geography teaching in primary school as good, as the teacher was able to explain the course content in a sensible manner, contrary to the teaching that the student experiences at the start of the NV course. Here, the student seems to experience that the teaching is rather difficult as the terms used are more challenging for the students to understand. This is a good example of how the use of a didactics takes into account the background knowledge and understanding that the students possess can have a positive effect on the students' perception of the subject. Yet another example can be seen below.

Student B: from an interview at the beginning of the NV course

"What didn't work so well was that there was too much to learn over a too short a time frame. And what worked well, I want to say was ... the teacher ... the teacher got the best out of it. "

The above might be viewed through the lens that the teacher in some situations are challenged to be able to make the teaching on time. A good organization of the teaching gives the students an impression that the teacher at least tries to teach as much as possible under the given circumstances, which in this case gave the student a positive perception of the teacher, when he

took into account the restrictive frameworks that the teacher was under, which influenced the student' attitude toward the subject.

A teacher's clear use of didactic considerations in his teaching can have a positive effect on the students' perception of the subject, but a lack of the same can have an equally negative effect. An example that is clearly seen in the quotation below in which a student's feelings for geography in primary school get better after the student changes teacher during the course.

Student D: from an interview at the beginning of the NV course

"The other (teacher) did something that might not be as good when we all sat together in the classroom. Then it was often that he would explain something at the blackboard, and everyone just sat there, and then asked questions about the subject. It might be, for example, that we had about volcanoes, and then we had to talk about ash, so he never came to the point of what he was talking about. So you understood the things he said, but never got the connection to the bigger picture, whereas the other (teacher) he interconnected all the things we had and made a perspectivation to other topics we have had, so you could easier see a connection of how things affected each other and how things had a natural coherence, which, after all meant that you just got a bigger and broader understanding of geography as a subject instead of just a single topic, which I think was a really good thing because he was good at linking those things."

From the quote above there is indicated a variation from one teacher who focused on teaching course content from lesson to lesson, to another teacher who took into account the previous material that the students had already been taught, and possibly the material that would be taught in the future. This seemed to have a positive effect on the student. Therefore, it could be said that the good didactic consideration by seeing the students' teaching in a larger whole, rather than individual teaching modules, gives the students a sense of greater coherence of course content internally in the subject, which gives the students a better feeling for the subject.

It is not only the teacher's didactic work that the students in this study mentioned, the teachers' commitment also influenced how they felt for the subject. As seen in the example below.

Student C: from an interview at beginning of the Physical Geography (PG) course
"In fact, I always liked it. I also had a very committed teacher in primary school. That is contagious. Yes, I certainly believe it is the teacher's role in the course that has caused me to have such a continuing commitment to it. If I had had a very poor teacher in primary school, then it might well be, that I would not sit here and talked it up this way."

The student's own commitment comes from the teacher, and this commitment also persists after the student doesn't have the teacher anymore.

The teacher's commitment can also be viewed as a sign of great academic knowledge about the subject. Whether this is the actual case, is a completely different discussion, although, this was a perception that was presented by one student. In the example below, the student is fond of the teachers in high school, as it seems that the teachers have a greater commitment because of their greater academic knowledge.

Student E: from an interview at beginning of the Physical Geography (PG) course
"The biggest difference is definitely the teachers. Yes, actually in all the subjects, where I have experienced that there are quite a few teachers here in the high school who are more ... Yes they are actually a bit more humorous in their way of teaching. But then you can also feel that they like it more, in how they like their subjects more. Maybe because they have more knowledge about it. But just the way they teach, where you can feel that it is something they want to talk about even though it is not something they have to talk about. But something they enjoy telling about, somehow. It makes the teaching a bit more fun if they also want to teach you what they say."

The opposite may then also be the case if students experience that the teacher has poor academic knowledge, or expresses poor knowledge. Then it can have a negative effect on the students' feelings for the subject, as can be seen in the example below.

Student F: from an interview at beginning of the Physical Geography (PG) course
"I really didn't like it (geography) in primary school because the teaching didn't work so well. So ... I didn't like our teacher either. He couldn't really handle anything. It was very boring. It wasn't exciting."

Here the student's perception of the teacher's academic knowledge seems to be linked to the experience of the teaching. Here it can be seen that the student does not like the teacher, and that the student partly based it on the feeling that the teacher has a low academic knowledge.

Previous studies on transition (Ebbensgaard, Jacobsen & Ulriksen, 2014) (Sillasen & Mølgaard, 2005) shows the importance of the relationship between the students and the teacher, especially in the transition from a just finished course to a new course. Where my own and the two studies come to much of the same conclusion that the teachers' relationship and commitment to their own subject can have a positive effect on the students, then the other two studies also come to the conclusion that if the teacher have a more personal relationship with the individual student it may also have a positive effect. It could be simple things like remembering the students' names and caring for them. Something that students in my study didn't expressed.

The use of group work and experimental work in teaching

A large proportion of the students responded to the first and second data collection, that the use of experiments and group work was one of the things they liked about the NV teaching. Several of them mentioned that experimental work was a good way to combine theory and practice in a teaching module. Others also mentioned that it gave a differentiation in the teaching, which was positive. This was also stressed by one of the students.

Student G: from an interview at the beginning of the NV course

" I am a little more into Social Science and Mathematics but I think it (NV) is presented in a slightly more interesting way than expected. It is presented in a slightly better way. This with ... this differentiation between the experiments and the formulas and talk time etc. makes this a bit more interesting, and that also makes it just slightly less difficult. Like many, their pre-impressions of NV is that NV are a difficult subject, and now you have to sit and read etc. etc .. I think they make a really good attempt to make it as exciting as possible.

For example in primary school it was always the teacher who wanted to go through it all and say what we should do, and here it is a bit more free, and we have our own roles, and we choose what we would like to take with us from the experiment, and if we are foolhardy and do not take enough, then it's our own fault. Or we can be fucking cautious and take it all, and that is our own."

Here it can be seen that although the student does not have his primary interest in sciences, the structure with experimental work in the teaching gave him a feeling of differentiation, and at the same time, it took some of the fear away that the student had for the subject. The experimental work provides a differentiation in the teaching, whereby the teaching becomes more interesting, even for students who may not have their primary interest in the sciences. The student in the example felt that NV teaching differed from the science teaching the student had had previously during primary school, where there were more blackboard teaching. This has given the student a better impression of the NV teaching, since the student had the fear that the teaching would have been much of the same as in primary school, furthermore, the student expressed that the group work has shifted more of the responsibility from the teacher to the students, which for the student was a positive thing. The feeling of responsibility and influence differed from the teaching the student had had in primary school, which mainly consisted of the blackboard teaching. It seems the student prefers this change, which is a picture that also can be seen from the other students' answers.

At the high school where this study was conducted, the NV teaching was structured so that the students had to work in groups to perform some set of experiments. These experiments had to be documented in a portfolio that the students were going to use for the exam. Thus, the experimental work and the group work are very closely linked in this situation. These two elements could be dealt with separately, as the enthusiasm could be rooted in different things, but as the experimental work in this study was done in groups, and as many of the students

mentioned these two themes in their answers, and sometimes in the same answer, then I choose to interpret it so that the interplay with these two themes is connected with the students' positive experience of NV. From my study it became clear that the students had had more group work in high school than they had in primary school. At the same time it was a factor they mention more often as being positive in relation to NV than for example in primary school geography, therefore it could be alluded to have a positive effect on feelings for the teaching. The social aspect of group work also had an importance for the students, as one student expressed.

Student G: from an interview at the end of NV the course

"I think they are very good at ... where you have some theory where we all sit and talk together, and then you have some group work where you actually sit and do an experiment, and so while you have group work the teacher comes out to your group and just teaches your group or you, and I think this has been very great ... as opposed to primary school where the teacher explains everything. Here you get more one-on-one with the teacher, and you get more group work and independent work, and I think that is much better."

By moving the teaching from the blackboard to the students themselves, the teacher is allowed to move more freely around in the classroom among the students and help them on a more one-on-one basis, something that this student likes about group work. It is clearly one of the benefits of group work for the teacher that there is more time to help the students. However, the teacher also loses some control of the teaching. But if you look at the quote above the student says that the person thrives under more student responsibility, which also applied to some of the other students in this study.

In the study from the Danish Ministry of Education from 2018 (Rambøll, 2018), some high schools are has been studied as to how they are handling the composition of class formation for the intro course. Here the "family" structure is mentioned as an example for a solution that some high schools use to have more heterogeneous classes with good harmony.

There is a connection between the harmony of the classes and the social interplay between the students. This is a challenge that has not been easier with the High School Reform from 2016, which introduces the new Intro course, in which there is a division of intro course classes and the principle of study course classes. In this way, two starts are created for the students; one at the start of the high school and to the intro course classes, and one at the start of the principle of

study course three months later with the principle of study course classes. Here, group work with the same people throughout the Intro course could contribute to facilitating a social space for the students, as they feel they are missing now.

In Ebbensgaard, Jacobsen and Ulriksen's study from 2014 (Ebbensgaard, Jacobsen & Ulriksen, 2014) the students state that they are missing a greater connection between theory and practice in the subjects both in primary school and high school, as in my study. Here, experimental work could help make that connection. If it is also done in groups then it can also draw other benefits from it. Group work can also help to create a greater sense of responsibility among the students, to what their study also showed that some students looked forward to in their transition to high school.

Too high intensity in the teaching

Many of the students in the study experienced NV as very intense, as a student stated.

Student I: from an interview at beginning of the Physical Geography (PG) course
"We also got told that if you do not listen now, then further in the course ... then it will be really hard to follow, because we do not repeat the teaching. And there were also constantly new things we learned. So that is also why there is a greater pressure in relation to the NV exam, right. That it always like new, new, new, new."

Here the student expresses a pressure in NV because new content had to be learned constantly, while there was no time for repetition. The amount of what had to be learned in the intended time made it very difficult for the students to follow the teaching. At the same time, it became more and more difficult for the student, because the teachers constantly focused on the content that would be used for the exam, as the same student also stated at the end of the NV course.

Student I: from an interview at the beginning of the NV course
"But it is like that the amount of learning we get is so much in relation to the time we have. And the way we do it. Because I have such a hard time understanding it all at once. It is almost such that a whole module is just them talking a lot, and then they lose me pretty quickly, and then I can't keep up with anymore. And then they quite often talk about this NV exam, or say that it is good to use for the exam. I just sit there. There are like 100 things they've said that are good to use for the exam, and then I'm like: oh no, I can't remember it all."

It can be seen that the exam seems very scary for the student, as the student thinks there is too much to remember. This may be an unintentional burden on the student from the teacher' side, as it has most likely been the intention of the teacher to help the student making him aware that what was taught could possibly be used for the exam. In the case of this study, NV was taught by several teachers, and if several of these teachers felt it necessary to make the students aware that what was taught might be used for the upcoming exam, then it may be that the student had experienced a overexposure to the statement "this can be used for the exam", which has meant that the student have felt very pressured.

Another problem that many of the students expressed was that they did not feel there was time to ask questions during the teaching, as a student expressed it.

Student C: from an interview at the beginning of the NV course

"Yes, because I think there are many of the questions that could potentially be asked, which will be beneficial for anyone just to be repeated one more time. But this may well feel like an intensive course where it is like bang, bang, bang.

Physics the first lesson, Physical Geography the second lesson and you know, and now we're going to exam, right."

This may also be due to the social barriers that may be present at the beginning of high school. Students do not know each other or the teacher, which may seem overwhelming to stand up and ask a question in the middle of a lesson. Partly because it can put focus on the student that the student doesn't want, and the student may be afraid that it may give the impression, to other students or the teacher, that the student is stupid. Although a short break in the teaching to answer questions could slow down the pace of the teaching, as well as give the teacher an insight into the students' academic background and then set the level of difficulty in the teaching thereafter, a thing that could possibly benefit the students. This is of course only possible if the teacher feels that there is time to do so within the time span set aside for teaching NV.

In the study from the Ministry of Education from 2018 (Rambøll, 2018) it is made clear that several of the teachers and the students felt that the NV course was compact. This may be due to several things. One of the bids is that NV has been shortened from six to three months, which have resulted in some challenges for the administration in high schools, but also for the teachers who have less time to complete a relatively large NV course. There has also been a requirement for an uniformity of the teaching in NV, in order to give the students the academic background

needed for the exam, as well as for the further teaching of the sciences course after the Intro course. Several of the high schools in the study used a rigorous curriculum-based teaching to cater for this uniformity. This had resulted in some of the teachers feeling that they did not have the freedom to organize the teaching according to the academic level among the students in their NV courses. Therefore, they have not been able to give students the time they needed, thereby giving them an inappropriate introduction to high school science.

In Ebbensgaard and Jacobsen's study (Ebbensgaard & Jacobsen, 2014) of the transitional problems from primary school to high school, a group of primary school teachers who attend a high school class experienced that the pace of the teaching was very high and that no consideration for the individual student was taken. Whether this is a general view from all primary school teachers can be difficult to say, but it gives a picture of the background that the students come from. In the same study, the students were also asked how they experienced the transition. In general, the students experienced the transition very differently and from different premises, not only the academic. However, students experienced in general a higher level of difficulty, a higher pace, time pressure, more homework and more responsibility in high school than primary school. However, this difference was not always a negative thing, as it was important for some students to feel a transition from the more childish to the more adult. However, there were also some of the students who felt that progression to high school was too fast. Several felt that one should not miss many lessons before automatically getting behind in class.

The use of visual aids in teaching

Among the group of students who participated in the third data collection, several of them answered that they liked the use of visual aids in the Physical Geography (PG) teaching, as a student expressed it.

Student C: from an interview at beginning of the Physical Geography (PG) course
"So we use an online portal for the teaching now that we didn't use in NV. There we only had a compendium. I find it more interesting that it is more interactive and more fun to do homework in.

So, there are some different themes, and then (the teacher) uses it (the portal). Right now (the teacher) has used it a lot for homework. Then we have to go in and do them and so and so. And that is very fine, because it complements some reading material with some files and some videos and some animations and in-depth work questions, and you can also write notes in it."

Here, the student expresses that the use of a more interactive digital portal with videos and animations is a good way to get teaching material, at least in relation to the more traditional compendium, which in this case was used in NV. Furthermore, it is also mentioned that the portal is a more fun medium to do homework in. This can be related to what the student says about that the homework and reading material can be supplemented with visual aids, which can help the student to relate the teaching material to the everyday life by examples of actual phenomena. Something that another student stated was a problem at the NV exam. The exam consisted of a presenting of previously made experiments using a portfolio.

Student K: from an interview at beginning of the Physical Geography (PG) course
"Yes, we are introduced to the course we are doing, and then we might see some different videos or models, and then our teacher explain what is going on in a the models and the various processes, and then asking us ... often we have to look at some models and try to explain them before (the teacher) explained what is going on e.g. on a model of Pangea where all the continents are connected.

I think I like a mix best. Because in NV I don't really think there was enough theory. Because when you went to the exam, I had a lot of experiments, and I showed them what we had done. But I didn't understand why we made the different experiments, and where you could perspective it to in reality."

The first part of the quote is the answer to a question about how the teaching of Physical Geography takes place. The second part of the quote is an answer to whether the student prefers this method rather than the one used in NV, where the students were to make experiments and document them in a portfolio. The student gives the impression that the experiments probably

lacked a connection to reality, something that would have helped the student understanding the purpose of these experiments. Here, some supplementary material e.g. in the form of visual aids may have helped the student.

In previous studies (Ebbensgaard, Jacobsen & Ulriksen, 2014) (Blomhøj & Jensen, 2007) it is emphasized that one of the major problems for students in the transition from primary school to high school is the change from everyday examples in the teaching in primary school to a more formalized approach in high school. The students go from a very concrete abstraction level in the teaching to a more symbol-oriented one, which many of the students have problems with.

One of the strengths of teaching geography, compared to other science subjects, is the opportunity of using visual aids, as this is a big part of the methodology in Geography. Because many of the students who have Physical Geography as a part of their principle of study course (studieretning) in high school do not follow a science principle of study course (retsinformation.dk). Then it may be that the use of visual aids such as, videos, animations and graphs can be seen as a benefit for their learning experience, as the students who have chosen a principle of study course with Physical Geography might having their interest, and thereby also competencies, outside the field of science, thereby also a lower level of abstraction than the students who follow a principle of study course with focus on science.

Students' interest for the subject

From the quantitative research data in this study, there is a predominant positive attitude towards Physical Geography, at approx. the same level as the attitude towards primary school geography. However, in the questionnaire- and interview responses, it seems that among several of the students that the general interest in the subject Physical Geography is not necessarily particularly high. It does not seem like there is a negative attitude towards the subject, but more likely a neutral one, as one student stated.

Student E: from an interview at beginning of the Physical Geography (PG) course
"Now, none of us has chosen the science principle of study course. We all have ... everyone in the class all have a neutral relationship to it (PG), I think."

This can be related to, as the student also says, that none of the students in his class have chosen a science principle of study course, since Physical Geography is not part of the sciences principle of study courses (retsinformation.dk). However, there are situations where Physical Geography

is an elective, and in these situations there may also be a greater interest for the subject from the students.

In the case of my study, the two questioned Physical Geography classes are respectively a Musical principle of study course and Social Studies principle of study course. Therefore, it is conceivable that these students may not necessarily have a great interest in the science subjects, as a student stated.

Student L: from an interview at beginning of the Physical Geography (PG) course
"To me, the social science part is a lot more exciting. So it has become a little more boring now. Before it was about 50% of the subject I liked. Now I think it is a little less exciting."

Here the student compares Physical Geography in high school with Geography from primary school. In primary school a larger proportion of the geography course consisted of social science elements, which appealed more to the student's interest. Since there has been a decline in social science elements from geography in primary school to Physical Geography in high school in this case, the student finds the subject less interesting now.

Another example of the fact that the science subjects may not necessarily appeal to students in non-sciences principle of study courses can be seen in an interview with two students, where the interviewer asks about which subjects that the students liked the best.

Student M and H: from an interview at beginning of the Physical Geography (PG) course (Students' response to which subjects they like in their principle of study course)

"Interviewer: May I hear a little about what types of subjects you like?"

M: Social Science, English and Mathematics.

H. Social Science, English and Sport Science"

The students had stated that Physical Geography was not their favorite subject. Therefore, interviewers (I) asked about which subjects were instead the students' favorite subjects. Here one student answered respectively; Social Science, English and Mathematics, and the other student; Social Science, English and Sport Science.

It is normal for students to choose their principle of study courses (studieretning) according to interest, as the Ministry of Education's study from 2018 (Rambøll, 2018) shows in a

questionnaire survey of students in 1st grade across all three-year high school programs. Here, 90% of the respondents said that their interest in the main subjects was their primary reason for choosing a principle of study course. 47% responded that they chose the principle of study course because it kept the door open for higher educations. Physical Geography is not a main subject in a principle of study courses, and it is not qualifying for any higher education. Therefore, it is conceivable that Physical Geography is rarely seen as a primary reason for students to choose a principle of study courses. The study also suggests that there is an overlap between what the students think is exciting and what they think they are good at, therefore, the interest of Physical Geography could be thought to be smaller among the students, as it may not be in sciences where the students have their primary competencies, since Physical Geography rarely occur in the science principle of study courses. Nevertheless, among all science subjects Physical Geography could possibly have the greatest appeal to these students, as it is not necessarily as formalistic as the others.

In Poulsen' report from 2011 (Poulsen, 2011) it shows, that among the high school students in the study, the majority of them think that NV gave them a good insight into what the science subjects are about. However, NV did not necessarily have the effect that the students became more interested in the sciences subjects. So it can be said that NV lives up to its requirement of giving the students a good introduction to the science subjects, but it probably hardly gets students to change their choice for their principle of study course. A result that also emerged in the Ministry of Education' report from 2018 (Rambøll, 2018). Therefore, it is possible to consider how much you can do as a Physical Geography teacher in a NV course, to get the students to choose a principle of study courses with Physical Geography.

The students often find meaning and interest in the subjects they follow from the notion of what they think they are going to use the content of subject for subsequently (Holmegaard, Madsen & Ulriksen 2013). If the subject does not live up to the conception they had, then the students may need to renegotiate this conception to the subject. In Malm, Madsen, Ulriksen and Neergaard' 2016 study (Malm, Madsen, Ulriksen & Neergaards, 2016) about first-year students at the university program "Natural Resources", they found three strategies (The Specialist-, The Perspective- and The Patient Accepted Strategy) that the students used to find meaning in the subjects they had. Here the students negotiated between their own interests and the purpose of the education in order to find a higher meaning with the subjects. If this should be translated into which strategy a physical geography student could use to find meaning with physical geography, a subject that they have not chosen for themselves. It could be translated as in the following:

The Specialist Strategy - the student has chosen the principle of study course to be able to enter one or more specific higher education programs. The principle of study course contains the qualifying subjects that allow this. The commitment in the subjects is based on getting a good grade in order to be able to enter their dream education.

The Perspective Strategy - the student has chosen the principle of study course because of interest in the main subjects. The student may not have chosen principle of study course based on what the subjects give access to in a higher education, but only from the interest of the subjects themselves. In the subjects that the student has not chosen or is interested in, the student finds the commitment in relation to how the subject can be put into perspective on the subjects that the student is actually interested in.

The Patiently Accepted Strategy - a mix of the other two. The student has chosen the principle of study course because of their interest in the main subjects. The student has chosen to begin in high school on the basis that it provides the opportunity to, afterwards, study at a higher education, but at moment has not chosen the type of education the student would like to study. The student's commitment is not necessarily in the individual subjects, but in that of attending an education with other young people, which is the student's primary reason for attending high school.

It is important to point out that this is my reinterpretation of the original strategies. The original strategies are based on how the students at the university program "Natural Resources" find meaning in the subjects they have. These are two different institutions (high school and university) with very different structures and history, therefore, it is not certain that such a direct translation of the strategies that I have done would be possible. However, it is an attempt from my side to try and understand which motives students might have for their commitment in a subject that they have not chosen.

The transition from a completed subject to a new one

In figure 18 it can be seen that there is a significant decrease in how happy the students are for Geography in primary school to their expected feelings for NV. Conversely, there is a significant increase in how happy the students expect they will be for Physical Geography and how they actually feel for Physical Geography. This shows that the significant changes in the students' feelings for the subjects take place in the actual expectations of a subject. The two examples are slightly opposite, as one is from one subject to the expectation of the next, and the other comes from the expectations for a subject to the actual experience of the subject.

Subject ----> expectations for the next subject

Expectations for a subject ----> the actual feelings for a subject

The explanation for the first example may lie in the fact that the students' expectations for NV are based on a week of NV teaching that the students already had experienced during the first data collection and that their expectations for NV should therefore not be rooted in their previous experiences of geography in primary school. Or, it should exactly be seen in relation to their experiences of geography in primary school and that their current experience of NV is very different from those they had in primary school. In any case, there has been a decrease in how the students expect to feel for NV.

Conversely, if you look at the expectations for Physical Geography and the actual teaching in Physical Geography, there is an increase in the students' feelings for the subject from their expectations of it. Here, experiences from NV must be intended to have an influence on their forward-looking expectations, since they have no other references to having these expectations. Therefore, it is conceivable that NV has had a negative impact on the students' expectation for Physical Geography. However, there will always be some kind of reduction in expectations for the next subject in a transition phase, as the expectations for the next subject are associated with uncertainty. So whether this difference between the expectation for Physical Geography and the actual experience of Physical Geography can be due to the students' experience in NV can be difficult to conclude. However, it is worth noting that in a transition between two subjects, even if the two subjects seem similar, there will always be some sort of uncertainty involved. It may be the teacher' role to try to reduce this uncertainty, for example by emphasize how much the current teaching differs from the teaching the students can expect in a possible new subject.

The students who participated in all three data collections

For the group of students who participated in all three data collections, it can be seen in figure 19 that there is a significant decrease in their feelings from geography in the primary school to Physical Geography in high school, where the lowest point is in NV. However, there is a significant increase in their feelings for the subject from NV to Physical Geography. The big difference between this group of students and the other students is that the students who participated in all three data collections were much happier with Geography in the primary school than the other students, and that there is no change from their expectations for Physical Geography and the actual teaching in Physical Geography.

Their good feelings for primary school geography may be due to the fact that this group of students is students of non-science principle of study course. Geography is a science subject, but

differs from the other science subjects by include a more Social Science profile, which may appeal more to the students who do not have the math and science subjects as primary interests. This may also be due to the students having to answer what attitude they had for geography in primary school one week into their NV course. It may happen that the possibly negative experience of NV may have put their previous subjects, Geography, in a better light than it was originally.

The fact that there is no change in their feeling between their expectations for Physical Geography and their actual experience of Physical Geography may be due to the fact that their Physical Geography teacher in NV has been able to give the students a realistic expectation of what the teaching of Physical Geography looks like. It may also be due to reason that the students have been able to identify Physical Geography as being separate from the other science subjects in NV, and thereby have a positive picture of how the future teaching in the subject Physical Geography will be.

However, it is worth noting that only eight students were involved in all three data collections, which is a relatively small sample of all the students. This is something to be aware of before generalizing too much for this group. Therefore, it can be difficult to conclude something concrete from this group.

Conclusion

The aim of this thesis has been to look at how the understanding of students' preferences can help to make their transition from Geography in primary school to Physical Geography in high school better through NV teaching. Therefore, the following research question was asked:

How can understanding of student preferences make students transition from Geography in the primary school, through NV, to Physical Geography in high school better?

- better for teachers could mean their planning of NV teaching
- better for students could mean more relatable content in the NV teaching

To answer these questions, a study was initiated by some newly started high school students and their experience of their transition from Geography in primary school, through NV, to Physical Geography in high school. This was done using a mixed-method that used a qualitative thematic analysis and a quantitative statistical method. Based on the findings of this study and previous studies, I have come to the following conclusion.

In relation to what the teachers can do in their planning of NV teaching, to make the transition better for students. I have the following bid on which actions can be done.

From the following findings in the study;

- Some of the students like to see a clear meaning of, or a red thread, through several teaching modules.
- Some of the students found that the experience of a well-worked didactic lesson that stretched across multiple modules worked positively on their experience of the teaching and the teacher.
- Some of the students found that a constant reminder of what in teaching could or should be used in an upcoming exam caused them to feel that the NV course was intense.

Then my suggestion will be that, in cooperation with the other teachers in NV, to clarify for the students what the goal of the teaching is, and makes it clear what is expected of the students in the exam. This is to give the students an impression that a well-thought didactic work has been done with a red thread throughout all the teaching modules in NV. This can also help to remove the focus from the exam in the teaching, since the students are already informed from the beginning of the course what will be relevant for the examination.

From the following findings in the study;

- Some of the students did not feel that there was time or opportunity to ask questions in the NV teaching, which could be due to a shortage of time in the NV teaching or the social barriers that may be at the beginning of high school.
- Some of the students felt that there was too much to learn within short timeframe in NV, which gave them a feeling of high intensity in the teaching.

Then my suggestion will be to give space and time in the teaching to take into account the students' different academic backgrounds. And as far as possible, create a teaching environment where the students have the opportunity to ask questions to the content. This could be in secure forums such as in small working groups e.g. in group work where there is not the same social barrier and exposing to students as in the open class teaching. Questions from the students can also help to reduce the pace in the lessons, which can help students to take some of the pressure that many of the students feel in NV teaching.

From the following findings in the study;

- Some of the students felt that the NV course seemed very intense and difficult, as there was no time for repetition of the teaching material.
- A lot of the students liked the experimental work, as it gave a differentiation to the teaching.

And from The High School Reform, Follow-up Research Program 3rd Report (Rambøll, 2018)

- Several teachers stated that due to the unification of the NV teaching, they do not feel that they have the freedom and time to organize the teaching according to the level academic knowledge the students have in the class.

Then my suggestion will be to set aside time in the course for repetition of the teaching material. Many of the students feel that the NV course is very intense. By allowing for variation and changes in teaching, as well as time for repetition, the sense of intensity for students may be reduced as they do not feel neglected or lost if they do not understand what is taught the first time.

From the following findings in the study;

- Some of the students stated that a good engagement of the teacher in the teaching affected them as students. The commitment could be seen both in terms of interest and great academic knowledge for his subject from the teacher's side.
- In the transition between what the students expected to feel for a future subject and their actual feelings for the subject, a significant difference was seen between the two. This can be interpreted as an uncertainty among the students for what the new subject will entail.

Then my suggestion will be to show a good commitment and academic insight into your subject. Engagement may affect the students. This confidence in the teacher may help to provide a better relationship with him. At a transition from one subject to another, or from one institution to another, the students may feel an uncertainty associated with what they can expect of the new subject or institution. So if the teacher, at the same time as showing some form of self-confidence in his or her own subject, also makes it clear to the students how the subject differs from the other science subjects, by pointing out which methods and topics the subject contains, so the students may get more enlightened and a less uncertain transition.

From the following findings in the study;

- A lot of the students liked group work, as it gave them more responsibility, which helped to distinguish high school from primary school by a more adult learning environment, which they found very positive.
- Some of the students found a social forum in the groups they had in NV, as they otherwise felt was missing from their start at the high school.

Then my suggestion will be to use group work in the teaching. Many of the students in my study were very happy with group work, which they found very appealing, as it facilitated a social space with the other students, which they think they lacked in their start of high school. Group work also helps to give more responsibility for learning among the students themselves, which many students were very positive about. More responsibility will also show a clear transition from primary school to high school in the sense that they are now in a more adult learning environment, which several of the students found important.

In relation to what the teachers can do in their NV teaching to make the content easier to relate to for the students, to make the transition better for them, I have the following suggestions to which actions that should be done.

From the following findings in the study;

- Some of the students felt that the experimental work helped create a link between the theoretical and the practical, which they found positive.

Then my suggestion would be to organize the teaching with a lot of experimental work. The students in my study were very positive about experimental work. This helped to create a good link between the theoretical and practical work.

From the following findings in the study;

- Some of the students liked the use of visual aids in the teaching. They felt it was a good way to relate the taught to reality and real phenomena, which may help to give the subject more relevance.
- Some of the students liked the use of visual aids in the teaching, as they felt it was good a supplement to their homework, by making it more interactive and topical.

Then my suggestion will be to use visual aids in the teaching. This can help students to relate the teaching to real phenomena and events. It can also help to supplement the reading material and make it more relevant, as it can benefit from more dynamic media, rather than more classic static books or compendiums. This can help to give more meaning to the subject and lower the level of abstraction, which may help the group of students having Physical Geography after the Intro course, as these students probably would not have sciences as their primary interests.

From the following findings in the study;

- Some of the students stated that they did not have Physical Geography or other science subjects as their primary interest in high school. This may be due to the fact that the two classes asked in the third data collection did not follow a science principle of study course.

And from The High School Reform, Follow-up Research Program 3rd Report (Rambøll, 2018)

- 90 % of the students answered that their chosen of principle of study course was based on interest for the main subjects.

And from the Malm, Madsen, Ulriksen & Neergaard' study from 2016 (Malm, Madsen, Ulriksen & Neergaard, 2016)

- The three strategies that the students at the university program "Natural Resources" use to find meaning in the subjects they have. I have tried to re-interpret these three strategies so that they could explain high school students' commitment in subjects they have not chosen. Of the three strategies "The Perspective's Strategy" is best suited for what one could imagine the students who have teaching in Physical Geography have, as they do not follow a science principle of study course and therefore must try to find meaning and commitment for a subject they do not have as their primary interest.

Then my suggestion would be to try to relate the teaching material to other disciplines than science, as many of the students do not necessarily have their primary interest in science. If the students use The Prospective Strategy, described earlier in the thesis, which you may expect approx. 90% of the students to do, because they choose their principle of study course from interest, then the students will try to relate what they learn in relation to the fields of interest they may have. By including these fields of interest in the teaching, if possible, then one could give

the subject more meaning and relevance for the students. This could be done by relating the content in the teaching to a social science, literary, humanistic, artistic etc. context.

These are my suggestion to how a Physical Geography teacher can incorporate knowledge about students preferences in their NV teaching, in order to improve the transition from Geography in primary school, through NV, to Physical Geography in high school for students. This thesis has taken the perspective of the students. However, the students are only one of the actors in the transition to high school. It could be interesting in a future work to involve other actors, such as teachers and administration and their experiences and challenges in order to get a more complete picture of the transition from Geography in primary school to Physical Geography in high school.

References

- Binderkrantz, Anne Skorkjær and Andersen, Lotte Bøgh Andersen, 2011, Guide til NVivo 9 (1. edition), København: Hans Reitzels Forlag
- Blomhøj, Morten, Jensen, Tomas Højgaard, 2007, SOS-projektet – didaktisk modellering af et sammenhængsproblem. MONA 2007-3
- Braun, Virginia and Clarke, Victoria, 2006, Using thematic analysis in psychology
- Ebbensgaard, Aase Bitsch, Jacobsen, Jens Christian, Ulriksen, Lars, 2014, Overgangsproblemer mellem grundskole og gymnasium i fagene dansk, matematik og engelsk, IND's skriftserie nr. 37, appendix
- Hansen, Erik Jørgen and Andersen, Bjarne Hjorth, 2009, Et sociologisk værktøj: Introduktion til den kvantitative metode (2. edition), København: Hans Reitzels Forlag, 100-155
- Holmegaard, Henriette Tolstrup, 2012 (1), The process of choosing what to study. A longitudinal study of upper secondary school students' identity work when choosing higher education
- Holmegaard, Henriette Tolstrup, 2012 (2), To choose or not to choose Science: Constructions of attractive identities among young people considering a STEM higher education programme
- Holmegaard, Henriette Tolstrup, Madsen, Lene Møller, Ulriksen, Lars, 2013, A journey of negotiation and belonging: understanding students' transitions to science and engineering in higher education
- Johnson, R. B., & Onwuegbuzie, A. J., 2004, Mixed methods research: A research paradigm whose time has come. Educational researcher, 33(7), 14-26.
- Kvale, Steinar and Brinkmann, Svend, 2009, Interview: Introduktion til et håndværk (2. edition), København: Hans Reitzels Forlag, 143-160

- Malm, Rie Hjørnegaard, Madsen, Lene Møller, Ulriksen, Lars, de Neergaard, Andreas, 2016, Det første år på Naturressourcer: En undersøgelse af studerendes oplevelser på det første år af bacheloruddannelsen i Naturressourcer på Københavns Universitet
- McGrew, J. Chapman and Monroe, Jr. Charles, 2009, An Introduction to Statistical Problem Solving in Geography (2. edition), Long Grove: Waveland Press, 130-145
- Poulsen, Jette Rygaard, 2011, Evaluering af naturvidenskabeligt grundforløb, Copenhagen: Undervisningsministeriet
- Rambøll, Danmarks Evalueringsinstitut, 2018, Gymnasireformen, Følgeforskningsprogram 3. delrapport, Copenhagen: Undervisningsministeriet
- retsinformation.dk, <https://www.retsinformation.dk/forms/r0710.aspx?id=186027>, Lov om de gymnasiale uddannelser (27/12/2016) § 20 & § 21, March 15 2019
- Sillasen, Martin Krabbe, Mølgaard, Hanna, 2005, Overgangsproblemer i naturfagene mellem folkeskole og gymnasium - et udviklingsprojekt i Silkeborg og Bjerringbro 2004-2005
- Taylor, Peter Charles, 2014, Contemporary Qualitative Research from: Handbook of Research on Science Education Routledge, 49-51
- uvm.dk, <https://uvm.dk/gymnasiale-uddannelser/fag-og-laereplaner/laereplaner-2017/stx-laereplaner-2017>, Naturvidenskabeligt grundforløb – stx (august 2017), April 5 2019

Appendix

1. 1. Questionnaire
2. 2. Questionnaire
3. 3. Questionnaire
4. 1. Interview guide
5. 2. Interview guide
6. 3. Interview guide
7. Original notes from verification of the themes
8. The full context of the quotes

Dette spørgeskema handler om jeres erfaring med geografi i grundskolen og jeres forventninger til NV og Naturgeografi i gymnasiet.

Spørgeskemaundersøgelsen er en del af et specialeprojekt omkring overgangen fra geografi i grundskolen til Naturgeografi i gymnasiet. Specialet bliver skrevet på Institut for Naturfagenes Didaktik.

Spørgeskemaet tager ca. 15 minutter at udfylde og er anonymt. Det er kun den specialestuderende, der kan se dine svar. Jeres lærere får dem ikke at se. Du får et spørgeskema mere i efteråret. For at kunne sammenligne dine svar beder vi dig skrive de to første og de to sidste cifre af dit cpr.nr. Vi kender ikke jeres cpr-nr., så du er fuldt ud anonym, men det er for at kunne sammenligne dine svar senere.

Tak for din hjælp. Dit svar har stor betydning for vores undersøgelse.

Vi glæder os til at høre fra dig.

Med venlig hilsen

Aputsiaq Simonsen

Specialestuderende, Institut for Naturfagenes Didaktisk

Københavns Universitet

Skriv de første to og de sidste to cifre i dit cpr.nr. (hvis du f.ske. har cpr.nr. 010102-1234, skal du skrive cifrene 0134)

Hvad lavede du, før du startede på Rysensteen Gymnasium? (sæt et x)

Gik i 9. klasse

Gik i 10. klasse

Var et år i udlandet

Andet

Fra hvilken skole har du afsluttet din 9. klasse eller 10. klasse?

Hvis du tænker tilbage på din geografiundervisning i grundskolen, hvordan ville en typisk undervisningsgang så se ud?

I hvor stor en del af undervisningen var det læreren, der underviste/talte?

_____ %

Hvor stor en del af undervisningen var det jer som elever, der lavede selvstændigt eller gruppearbejde?

_____ %

Hvor stor en del af lærerens undervisning bestod af: (det skal give 100% i sidste ende!)

Tavleundervisning (for alle): _____ %

Undervisning af grupper: _____ %

Undervisning af den enkelte elev: _____ %

Undervisning over nettet eller andre medier: _____ %

Andet: _____ %

Hvor stor en del af jer som elevers arbejde bestod af: (det skal give 100% i sidste ende!)

Selvstændigt arbejde i klassen: _____ %

Gruppearbejde: _____ %

Holde oplæg for andre: _____ %

Besvare opgaver/spørgsmål over nette eller andre medier: _____ %

Lektier: _____ %

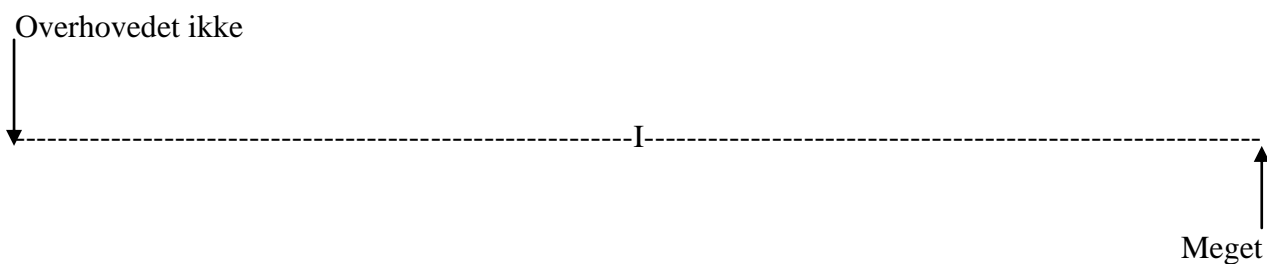
Andet: _____ %

Kom med et eksempel på hvordan en typisk geografiundervisning i din grundskoleklasse så ud?
(eks. "Læreren startede med tavleundervisning - så skulle eleverne lave opgaver - så skulle nogle, eller alle, elever holde oplæg - så ville læreren slutte af med undervisning ved tavlen og give lektier for til næste gang")

Hvad kunne du godt lide ved din geografiundervisning i grundskolen?

Hvad kunne du ikke lide ved din geografiundervisning i grundskolen?

Hvor glad var du for geografi som fag i grundskolen? (sæt et x)



Med den korte oplevelse af NV du har haft indtil nu, hvordan forventer du, at en typisk NV undervisningsgang kommer til at se ud?

I hvor stor en del af undervisningen ville det være læreren, der underviser/taler?

_____ %

I hvor stor en del af undervisningen vil det være jer som elever, der laver selvstændigt- eller gruppearbejde?

_____ %

Hvor stor en del af lærerens undervisning kommer til at bestå af: (det skal give 100% i sidste ende!)

Tavleundervisning (for alle): _____ %

Undervisning af grupper: _____ %

Undervisning af enkelte elever: _____ %

Undervisning over nettet eller andre medier: _____ %

Andet: _____ %

Hvor stor en del af jer som elevers arbejde kommer til at bestå af: (det skal give 100% i sidste ende!)

Selvstændigt arbejde i klassen: _____ %

Gruppearbejde: _____ %

Holde oplæg for andre: _____ %

Besvare opgaver/spørgsmål over nette eller andre medier: _____ %

Lektier: _____ %

Andet: _____ %

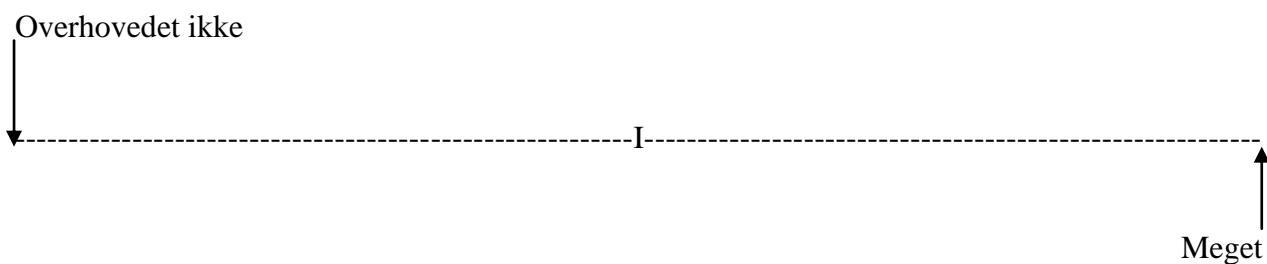
Hvordan forventer du, at en typisk NV undervisningsgang kommer til at se ud? (eks. "Læreren starter med tavleundervisning - så skal eleverne lave opgaver - så skal nogle, eller alle, elever holde oplæg - så vil læreren slutte af med undervisning ved tavlen og give lektier for til næste gang")

Hvad forventer du, at du bedst kommer til at kunne lide med undervisning i NV?

Hvad frygter du mest ved undervisningen i NV?

Hvad tror du, der kommer til at være den største forskel på undervisningen i geografi i grundskolen og NV i gymnasiet?

Hvor meget ser du frem til at have undervisning i NV? (sæt et x)



Dette spørgeskema handler om jeres erfaring NV-forløbet og jeres forestilling om Naturgeografi i gymnasiet.

Spørgeskemaundersøgelsen er en del af et specialeprojekt omkring overgangen fra geografi i grundskolen til Naturgeografi i gymnasiet. Specialet bliver skrevet på Institut for Naturfagenes Didaktik.

Spørgeskemaet tager ca. 15 minutter at udfylde og er anonymt. Det er kun den specialestuderende, der kan se dine svar. Jeres lærere får dem ikke at se. I fik et lignende spørgeskema for en måned siden. For at kunne sammenligne dine svar beder vi dig skrive de to første og de to sidste cifre af dit cpr.nr. Vi kender ikke jeres cpr-nr., så du er fuldt ud anonym, men det er for at kunne sammenligne dine svar senere.

Tak for din hjælp. Dit svar har stor betydning for vores undersøgelse.

Vi glæder os til at høre fra dig.

Med venlig hilsen

Aputsiaq Simonsen

Specialestuderende, Institut for Naturfagenes Didaktisk

Københavns Universitet

Skriv de første to og de sidste to cifre i dit cpr.nr. (hvis du f.ske. har cpr.nr. 010102-1234, skal du skrive cifrene 0134)

Nu hvor du har været igennem næsten hele NV-forløbet, hvordan har en typisk undervisningsgang så se ud:

I hvor stor en del af undervisningen var det læreren der underviste/talte?

_____ %

I hvor stor en del af undervisningen var det jer som elever der lavede selvstændigt- eller gruppearbejde?

_____ %

Hvor stor en del af lærerens undervisning bestod af: (det skal give 100 % i sidste ende!)

Tavleundervisning (for alle): _____ %

Undervisning af grupper: _____ %

Undervisning af den enkelte elev: _____ %

Undervisning over nettet eller andre medier: _____ %

Andet: _____ %

Hvor stor en del af jer som elevers arbejde bestod af: (det skal give 100 % i sidste ende!)

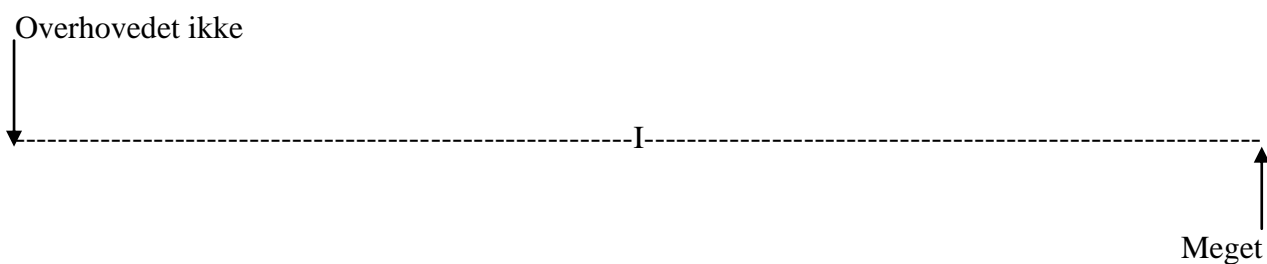
<i>Selvstændigt arbejde i klassen:</i>	_____	%
<i>Gruppearbejde:</i>	_____	%
<i>Holde oplæg for andre:</i>	_____	%
<i>Besvare opgaver/spørgsmål over nette eller andre medier:</i>	_____	%
<i>Lektier:</i>	_____	%
<i>Andet:</i>	_____	%

Kom med et eksempel på hvordan en typisk NV undervisningsgang så ud? (eks. "Læreren startede med tavleundervisning - så skulle eleverne lave opgaver - så skulle nogle, eller alle, elever holde oplæg - så ville læreren slutte af med undervisning ved tavlen og give lektier for til næste gang")

Hvad kunne du godt lide ved NV undervisningen?

Hvad kunne du ikke lide ved NV undervisningen?

Hvor glad har du været for NV undervisningen? (sæt et x)



Levede NV undervisningen op til de forestillinger du havde af faget inden du begyndte på gymnasiet? (ja/nej, og forklare gerne hvordan og hvorfor)

Nu kommer der et hypotetisk spørgsmål. Hvis du kommer ind på en studieretning som har Naturgeografi i sin pakke, eller du vælger det som valgfag senere. Med den erfaring du har på nuværende tidspunkt. Hvordan kunne du så forestille dig, at en typisk undervisningsgang ville se ud:

I hvor stor en del af undervisningen ville det være læreren der underviser/taler?

_____ %

I hvor stor en del af undervisningen vil det være jer som elever der laver selvstændigt- eller gruppearbejde?

_____ %

Hvor stor en del af lærerens undervisning kommer til at bestå af: (det skal give 100 % i sidste ende!)

Tavleundervisning (for alle): _____ %

Undervisning af grupper: _____ %

Undervisning af enkelte elever: _____ %

Undervisning over nettet eller andre medier: _____ %

Andet: _____ %

Hvor stor en del af jer som elevers arbejde kommer til at bestå af: (det skal give 100 % i sidste ende!)

Selvstændigt arbejde i klassen: _____ %

Gruppearbejde: _____ %

Holde oplæg for andre: _____ %

Besvare opgaver/spørgsmål over nette eller andre medier: _____ %

Lektier: _____ %

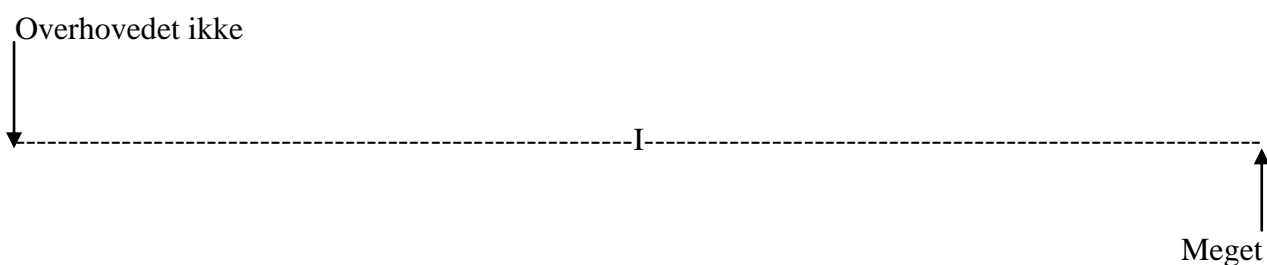
Andet: _____ %

Hvordan forventer du, at en typisk Naturgeografi undervisningsgang kommer til at se ud? (eks. "Læreren starter med tavleundervisning - så skal eleverne lave opgaver - så skal nogle, eller alle, elever holde oplæg - så vil læreren slutte af med undervisning ved tavlen og give lektier for til næste gang")

Hvad kunne du forestille dig, at du bedst ville kunne lide ved en Naturgeografiundervisning?

Hvad kunne du forestille dig, at du ikke ville kunne lide ved en Naturgeografiundervisning ?

Hvor meget ville du se frem til at have undervisning i Naturgeografi på nuværende tidspunkt, hvis du skulle have faget? (sæt et x)



Hvad kunne du forestille dig var den største forskel på geografi i grundskolen og Naturgeografi i gymnasiet?

Dette spørgeskema handler om jeres erfaring med Naturgeografi i gymnasiet.

Spørgeskemaundersøgelsen er en del af et specialeprojekt omkring overgangen fra geografi i grundskolen til Naturgeografi i gymnasiet. Specialet bliver skrevet på Institut for Naturfagernes Didaktik.

Spørgeskemaet tager ca. 15 minutter at udfylde og er anonymt. Det er kun den specialestuderende, der kan se dine svar. Jeres lærere får dem ikke at se. Andre elever har også deltaget i undersøgelsen. For at kunne sammenligne dine svar med deres, beder vi dig skrive de to første og de to sidste cifre af dit cpr.nr. Vi kender ikke jeres cpr-nr., så du er fuldt ud anonym.

Tak for din hjælp. Dit svar har stor betydning for vores undersøgelse.

Vi glæder os til at høre fra dig.

Med venlig hilsen

Aputsiaq Simonsen

Specialestuderende, Institut for Naturfagernes Didaktisk

Københavns Universitet

Skriv de første to og de sidste to cifre i dit cpr.nr. (hvis du f.ske. har cpr.nr. 010102-1234, skal du skrive cifrene 0134)

Nu hvor du har haft Naturgeografi i et stykke tid, hvordan ser en typisk undervisningsgang så ud:

I hvor stor en del af undervisningen er det læreren der underviser/taler?

_____ %

I hvor stor en del af undervisningen er det jer som elever der laver selvstændigt- eller gruppearbejde?

_____ %

Hvor stor en del af lærerens undervisning består af: (det skal give 100 % i sidste ende)

Tavleundervisning (for alle): _____ %

Undervisning af grupper: _____ %

Undervisning af den enkelte elev: _____ %

Undervisning over nettet eller andre medier: _____ %

Andet: _____ %

Hvor stor en del af jer som elevers arbejde består af: (det skal give 100 % i sidste ende)

Selvstændigt arbejde i klassen: _____ %

Gruppearbejde: _____ %

Holde oplæg for andre: _____ %

Besvare opgaver/spørgsmål over nettet eller andre medier: _____ %

Lektier: _____ %

Andet: _____ %

Kom med et eksempel på hvordan en typisk Naturgeografiundervisningsgang ser ud? (eks. "Læreren starter med tavleundervisning - så skal eleverne lave opgaver - så skal nogle, eller alle, elever holde oplæg - så vil læreren slutte af med undervisning ved tavlen og give lektier for til næste gang")

Hvad kan du godt lide ved Naturgeografiundervisningen?

Hvad kan du ikke lide ved Naturgeografiundervisningen?

Hvor glad er du for Naturgeografi som fag? (sæt et x)

Overhovedet ikke



I



Meget

Lever Naturgeografiundervisningen op til de forestillinger du havde om faget inden du begyndte på gymnasiet? (ja/nej, og forklar gerne hvordan og hvorfor)

Hvad synes du er den største forskel på geografi i grundskolen og Naturgeografi i gymnasiet?

Interviewguide - semi-konstrueret

Kan du fortælle mig lidt mere detaljerede om hvordan undervisningsgang i geografi i grundskolen var?

Kan du fortælle mig lidt om NV, og hvordan du forventer det kommer til at forløbe?

Hvad er dit generelle forhold til geografi og NV?

Interviewguide - semi-konstrueret

Kan du fortælle mig lidt mere detaljerede om hvordan undervisningen i NV har været?

Her det levede op til de forventninger du havde til faget før du begyndte?

Har dit forhold til naturfagene ændrede sig under NV-forløbet?

Hvordan kunne du forstille dig, at en typisk Naturgeografiundervisning ville se ud?

Hvilken forskel kan du forestille dig der ville være på geografiundervisningen i grundskolen og Naturgeografiundervisningen i gymnasiet?

Interviewguide - semi-konstrueret

Kan du fortælle mig lidt mere detaljerede om hvordan undervisningen i Naturgeografi har været?

Har det levede op til de forventninger du havde til faget før du begyndte?

Har dit forhold til geografi ændrede sig fra folkeskolen til nu?

Hvad synes du der har været den største forskel på geografiundervisningen i folkeskolen og Naturgeografiundervisningen i gymnasiet?

geografi i verdener?
= kulturgeografi

Positiv grundskole

- God lærer (engageret) metoder |||||/||| *
- niveau "
- Undervisningsmetoder |
 - oplæs!
 - forståelse pr. 1 time til 1 time
 - valgfrihed!
- selvstændigt "
- tavleundervisning / gennemgang ||| * lærer forklarer godt
- spændende

Negativ grundskole

- dårlig lærer "|||"
- tid / ikke nok undervisning "
- undervisningsmetode (lærer snakke, for meget) |||||/||| forslag / tavle
- niveau "
- Emne " (for bredt)
- lædeligt "
- for mange lektier "

positiv NV

- gruppe arbejde, |||||/|||"
- Emner "||| → real life
- Forsøg |||||/|||"
- tavleundervisning (+1 -1)
- niveau (dybere) "

Negativ

- tid "|||/|||"
- mangl på gennemgang "|||"
- "tunt" "(|||) ensformigt "
- for mange forsøg ||||| for meget repetition!
- læsning |

↖ sociale

Positiv Ng

- Video + animation ^{modeller} ||| ||| ||| |||
- ^{faglige} Emner ||| ||| (ikke lige så "tungt")
- Gruppe arbejde ||| ||| |
 - arbejdsform

Negativ Ng

- ikke nok dybde ||| |
- ikke nok gruppe arbejde
- • kedelig teori / svært ||| ||| ||| ||| |||
- Ved det i forvejen |
- % aktiv |||
- • ensformigt |||
- vidensfag

Citater fra interviews

Læren var god (positiv)

Interview A

Del 1

Undersøger. Du havde geografi i folkeskolen, hvordan var det?

A. Det var sjovt for vi havde en rigtig god lærer.

Undersøger. Hvorfor var det sjovt? Hvis du prøver at komme mig igennem sådan en undervisningsgang.

A. Selve undervisningen synes jeg ikke var så spændende.

Undersøger. Hvordan var undervisningen? Hvordan foregik den?

A. Det var meget sådan, at vi kom bare ind og så lærte han os det. Halvdelen af timen, så var det ham der talte. Så fik vi opgaverne, og så var det sådan ... Ja, så lavede vi bare opgaver.

Undersøger. Så han talte den ene halvdel af timen, og så lavede I opgaver den anden halvdel af timen?

A. Ja.

Undersøger. Hvorfor var det så sjovt?

A. Det var sjovt sådan, at man fik lov til at sidde med de andre elever, og så når man rent faktisk lavede opgaverne, så var man sammen med dem. Men sådan generelt så kunne jeg godt lide det fordi, at han var en fucking sjov lærer.

Undersøger. Kan du prøve at forklare hvordan han var sjov?

A. Det ved jeg godt du ikke kan bruge til noget. Men han lavede bare alt jokes og sådan noget.

Undersøger. Okay, så det var meget uformelt når han sådan underviste?

A. Ja, meget uformelt. Der var ikke rigtig sådan lektier. Det var ikke sådan, at man skulle lære noget der hjemme, og så komme over ... og sådan så kommer over ... her har jeg sådan oplevede, at man selv skal læse der hjemme, og så kommer man over og laver et forsøg hvor det sådan bliver bekræftede det man har lært der hjemme. Der var det sådan, at så fortalte han det en. Så det var meget lettere at forstå, fordi det var sådan ham der fortalte en det. I stedet for, at man selv skulle hjem og læse noget. Så hvis man havde et spørgsmål så kunne man ikke rigtig spørge noget om det, fordi man skal jo sidde og læse det jo. Ja, så er det lettere at forstå.

Del 2

Undersøger. Hvad var det gode ved den måde, at gøre det på i folkeskolen?

A. Jeg synes bare det var lettere, at lære det. Fordi det var lettere at forstå. Man kunne også spørger ind til det mere.

Undersøger. Så der var mere hjælp at hente, hvis det var?

A. Ja. Ikke at det er fordi de ikke gider at hjælpe os her men.

Undersøger. Er det noget med niveauet at gøre? Er det nemmere eller svære?

A. Nej, det føler jeg ingen gang. Jeg tror også bare de (lærerne i NV) forklar det på en anden måde.

Undersøger. Kan du forklare hvordan de (lærerne i NV) forklare det på en anden måde. Eller hvordan han (læren fra folkeskolen) forklarede det på en anden måde?

A. Han forklarede det måske bare med sådan nogle ord som gav lidt mere mening. Eller hvor han sat det sådan mere ind i en hverdagsagtig sådan noget sprog. Hvor her siger eller bruger de bare alle de der fancy ord, og regner med vi sådan godt kan det, og sådan godt ved hvad de betyder. Og vi har ingen ide om hvad det betyder.

Interview B

Undersøger. Hvis du tænker på folkeskolen. Hvad var det der fungerede godt der (i forhold til geografiundervisningen), og hvad var det der ikke fungerede så godt?

B. Det der ikke fungerede så godt det var det med, at der var for meget at lære på for kort tid. Og det der fungerede godt, det vil jeg sige var ... læren ... læren fik det bedste ud af det.

Interview C

Undersøger. Har din holdning til faget (geografi) ændrede sig fra folkeskolen til gymnasiet?

C. Jeg har faktisk altid godt kunne lide det. Jeg havde også en meget engagerede lære i folkeskolen. Så det smitter lidt af.

Undersøger. Hvad med lærerne her (gymnasiet)?

C. Han er også engagerede, og jeg kan egentlig lide den måde hun underviser på. Det fanger mig meget godt.

Undersøger. Så man kan sige at lærerne har haft en positiv indflydelse på din holdning til faget?

C. Ja, jeg tror helt klart at det er lærerens rolle i faget der har gjort, at jeg har haft sådan en vedblivende engagement for det. Hvis jeg havde haft en meget træls lærer i folkeskolen, så kunne det godt være, at jeg ikke sad her og talte det op på den måde.

Læren var dårlig (negativ)

Interview D

Undersøger. Havde du det (geografi i folkeskolen) i 3 år?

D. Ja

Undersøger. Den samme lærer i alle 3 år?

D. Ja ... øh nej ... Vi skiftede lidt. Jeg tror vi havde ham (den gode lærer) i 2 år.

Undersøger. Var der forskel på de måder de to lærere underviste på?

D. Ja det var der bestemt. Det var klart ham vi havde til sidst der var den bedste.

Undersøger. Hvorfor var han den bedste?

D. Han var klog på faget for det første. Så var han en god lærer. For det andet så var han god til at formidle sig, og lære folk det der var på programmet. Og så var det bare en mere spændende undervisning. Det var federe ting vi lavede. Jeg synes bare, at alle de ting vi lavede hos ham det var bare lige det bedre end ham vi havde før.

Undersøger. Kan du prøve, at komme med et eksempel på hvor ham der gjorde noget godt, og hvor ham den anden gjorde noget der måske ikke var så godt?

D. Det kan jeg sgu godt. Den anden gjorde noget der måske ikke var så godt ved, når vi alle sammen sad sammen i klassen. Så var det tit noget med, at han viste noget op ved tavlen, og alle sad bare sådan der, og så stillede man spørgsmål ind til det han snakkede om. Det kunne eksempel være, at vi havde om vulkaner, og så skulle vi snakke lidt om aske. Så var det sådan, at han aldrig kom til sagen i de ting han snakkede om. Så man forstå godt de ting han sagde, men fik ikke sammenhængen med i det større billede. Hvor ham den anden han sammenkoblede alle ting vi havde, og perspektiverede til andre emner vi havde haft. Så sådan man kunne se en sammenhæng med hvordan ting påvirker hinanden, og hvordan ting havde en sammenkædning. Hvilke jo gjorde, at man jo lige gjorde at man fik en større og breder forståelse for geografi som fag. I stedet for bare et enkelt emne. Det synes jeg var rigtig fedt det der med, at han var god til at sammenkæde de der ting. Og så lavede også federe ting med ham. Så kunne vi finde på, at lave sådan noget. En gang i mellem når han godt viste, at det var lidt tørt i det emne vi havde. Så kunne vi finde på, at lave nogle sjove ting eller en hurtig leg. Sådan noget med, hvor vi skulle skrive nogle lande ned, og skulle gætte lande ved, at sige noget fakta om et eller andet. Han var god til det, og han havde sat sig ind i tingene.

Interview E

Undersøger. Hvad vil sige der er den største forskel mellem geografi i folkeskolen og naturgeografi i gymnasiet?

E. Geografi i folkeskolen og naturgeografi i gymnasiet?

Undersøger. Ja.

E. Den største forskel er helt klart lærerne. Ja, det er det faktisk i alle fag. Hvor jeg har oplevede, at der er ret mange lærere her i gymnasiet der både er sådan mere ... ja de er faktisk sådan lidt mere humoristiske i deres måde at undervise på. Men så kan man også godt mærke, at de sådan at de vil det mere. Sådan de vil mere deres fag. Måske fordi de har mere viden om det. Men bare måden de underviser på. Hvor man kan mærke, at det de snakker om det er ikke noget de skal snakke om. Men noget de nyder at fortælle en, på en eller anden måde. Det gør undervisningen lidt sjovere hvis de også har lyst til det de også siger til en.

Interview F

Undersøger. Har din holdning til geografi ændre sig fra folkeskolen til nu her?

F. Rigtigt meget. Jeg kunne virkelig ikke lide det i folkeskolen fordi, at undervisningen fungerede ikke så godt. Sådan ... Jeg kunne ikke så godt lide vores lærer heller. Han havde ikke rigtigt styr på noget. Det var meget kedeligt. Det var ikke spændende. Det er noget helt andet synes jeg.

Undersøger. Så hvad vil du sige der ikke rigtig fungerede så godt i undervisningen?

F. Det var nogle meget kedelig emner, og vi skulle altid lave oplæg og mange store lektier, og vi gik bare i 7. klasse, og det var der ikke så mange der fik lavet. Og det var han sådan lidt ligeglad med.

Gruppearbejde/Forsøg (positiv)

Interview G

Undersøgeren. Hvis man tænker sådan på selve undervisningen og hvordan den er foregået. Med forsøgene og læreren og jeres arbejde. Har du så egentlig synes det har været en fin nok fordeling?

G. Det synes jeg. Jeg synes de er meget gode til det der hvor man har noget teori, hvor vi alle sammen sidder og snakker sammen, og så har du noget gruppearbejde hvor man egentlig sidder

og laver forsøg, og så imens du har gruppearbejde, så kommer læreren ud til din gruppe, og lige underviser din gruppe eller dig. Og det synes jeg har været meget fedt det her med at ... modsat folkeskolen hvor læreren forklare det hele, så får du mere one on one med læreren, og du får mere gruppearbejde og selvstændigt arbejde. Og det synes jeg er meget federe.

Interview H

Undersøger. Den her måde at gøre det på med familierne, i grupper og eksperimenterne. Kan du godt lide den form for undervisning?

H. Ja, jeg kan virkelig godt lide det. Det eneste problem jeg har med det er, at jeg synes det skal være meget mere blandet de her grupper. Altså jeg forstår godt regeringen ikke ville have at vi skal møde så mange mennesker i Introforløbet som før i tiden, ikke. Men jeg synes jeg har mødt mennesker fra min familie, ikke, og det er 10 mennesker, og så lige de grupper jeg har matematik med f.eks. og de her. Jeg ser dem, men jeg har ikke har ikke talt med dem. Så jeg synes der mangler lidt socialt. Jeg synes der mangler lidt det sociale udenfor grupperne. Men selve teorien med, at man arbejder fire mennesker og man laver et forsøg i hver time. Det fungerer virkelig, virkelig godt.

Interview G²

Undersøger. Har du fået et bedre syn på de naturfaglige fag her?

G. Det synes jeg. Nu er jeg selv lidt mere til det samfundsfaglig og matematik men jeg synes, at det bliver præsenteret på en lidt mere interessant måde end det vanlige. Det bliver serverede på en lidt federe. Det her med, at ... den her igen ... differentiering mellem forsøgene og formlerne og snakketid osv. gør det her lidt mere interessant. Og det gør det også bare til et lidt mindre tungt emne. Som mange har deres forhåndsindtryk af NV det er jo et tungt emne, og nu skal du sidde og læse osv. osv.. Jeg synes de gøre et rigtig godt forsøg på, at gøre det så spændende som muligt. Og det giver os også ... det er jo meget individuelt. F.eks. når vi skal til at lave forsøg. Så skal vi gøre det og det og det. F.eks. tage noter og sådan noget.

Undersøger. Kan du godt lide det på den måde?

G. Ja, det kan jeg. For f.eks. i folkeskolen så var det jo altid læreren der ville gennemgå det hele og sige hvad vi skulle gøre, og her er det lidt mere frit, og vi har vores egne roller, og vi vælger selv hvad vi ville tage med fra forsøget. Og hvis vi er dumdristig og ikke tager nok med. Så er det vores egen skyld. Eller vi kan være skide forsigtige og tage det hele med. Og det er så vores eget.

Intensiteten (negativ)

Interview C²

Del 1

Undersøger. Hvad vil du sige er den store forskel mellem NV og geografi i folkeskolen?

C. Pensum. Jeg tror man skal lære meget mere på kortere tid i NV forløbet.

Del 2

Undersøger. Føler du at man taber noget ved, at der er den her tilbageholdenhed?

C. Ja, for jeg tror der er mange af de spørgsmål som der kunne potentielt blive stillet. Som vil være gavnligt for alle lige at få gentaget en enkel gang til. Men det kan måske godt føles som om et intensivt forløb hvor det er sådan meget bang, bang, bang. Fysik den ene gang, Naturgeografi den anden gang og du ved, og nu skal vi til eksamen agtig.

Interview I

Undersøger. Hvis man så tager det med her med NV. Hvad er det så der fungerer, og hvad fungerer måske ikke så meget?

I. Jeg synes de her forsøg virker sådan virkelig godt. For sådan fordi, læreren forklar lidt forsøget, men også sådan giver os også helt frit reb til sådan, at selv at finde ud af det til, at der opstår et problem. Så er det forkert. Så kan vi ligesom selv hive og sige: hey, jeg tror ligesom at der gik noget galt her. Eller hvis vi ligesom er i tvivl om noget. Så jeg synes det er meget fedt måden vi ligesom laver forsøg. Men det er sådan den antal læring, eller den mængden læring vi får er sådan meget i forhold til det tid vi har. Og sådan måde vi gør det på. For jeg har sådan svært ved at forstå det alt sammen på en gang. Det er jo næsten sådan et helt modul er bare de snakker meget, og så mister de mig sådan ret hurtigt, og så kan jeg ikke følge med længere. Og så står de jo ret ofte og snakker om den her NV eksamen, eller siger at det er godt at bruge til eksamen. Jeg så sidder jeg bare der. Der er 100 ting de tænker de har sagt er godt at bruge til eksamen, og så er jeg fuldstændig: åh nej, jeg kan ikke huske det hele.

Interview J

Undersøger. Havde I f.eks. tid i NV til at repetere det?

J. Det synes jeg ikke. Det var meget. Vi fik også meget at vide, at hvis I ikke hører efter nu, så bliver det længere fremme i forløbet så bliver det rigtig svært at følge med, for vi repeterer ikke. Og der var der også hele tiden nye ting vi lærte. Så det er også derfor, at der er et større pres i forhold til NV eksamen, ikke. At det hele tiden var sådan nyt, nyt, nyt, nyt.

Den visuelle fremvisning (positiv)

Interview C

Undersøger. Hvordan kan du se i undervisningen, at det er sådan? (læreren har friere tøjler i undervisningen i Naturgeografi end ved NV)

C. Jeg synes de fagportaler vi bruger. Altså vi bruger jo en portal til undervisningen nu som vi ikke brugte i NV. Der havde vi bare et kompendium. Jeg synes det er mere interessant, at det er mere interaktivt og sjovere at lave lektier i også. Jeg tror bare at ... jeg synes bare at jeg kan mærke, at (læreren) har sat sit eget præg på det, og at det ikke et eller andet (læreren) har stukket ned over sig ovenfra, som (læreren) så skal undervise på den og den måde. Det er (læreren) selv der har forbedret undervisningen på (lærerens) måde.

Undersøger. Kan du fortælle mig lidt om den portal der? Hvad kan den?

C. Jamen ... det er. Jeg tror vi bruger noget lignende i Fysik. Altså, så er der nogle forskellige temaer, og så bruger (læreren) den. Lige nu har (læreren) brugt den meget til lektier. Så skal vi gå ind og læse det og det og det. Og så er det meget fint, for den komplimentere noget fagligt stof med nogle filer og nogle videoer og nogle animationer og sådan uddybende arbejdsopgaver, og man kan skrive noter der inde. Men det bruger jeg ikke selv. Men den er meget fin egentlig.

Interview K

Del 1

Undersøger. Kan fortælle mig lidt om hvordan sådan en klassisk Naturgeografiundervisning forgår?

K. Ja, altså vi bliver sådan introducerede for det forløb vi er i gang med, og så ser vi måske nogen forskellige videoer eller modeller, og så forklar vores lærer det sådan ud for modellerne sådan hvad det er der foregår og sådan. De forskellige processer, og spørger os ... tit så har vi skulle se på nogle modeller og prøve at forklare dem, før (læreren) forklarede hvad det ligesom

var at der foregår. F.eks. sådan en model over Pangea hvor det ligesom hænger sammen alle kontinenterne. Så skal vi ligesom selv prøve at gætte på hvad der var sket. På nogle andre modeller så er det ligesom hvordan Verden ser ud, og så skulle vi selv gætte at det var sådan at pladerne havde flyttet sig før (læreren) forklarede det. Og så bliver vi inddelt i noget gruppearbejde typisk til at lave de ting. Og så har vi arbejdet med Google Earth hvor vi har sådan kunne selv kigge på de der plader og selv sådan danne et overblik over ting, så vi ligesom selv også laver noget på computer hvor vi selv kan danne et overblik over de forskellige ting. Og vi laver det meste af vores arbejde i grupper.

Undersøger. Var det en anderledes måde end jeres NV forløb?

....

Undersøger. Hvad kan du bedst lide af de to måder?

K. Jeg tror bedst jeg kan lide en blanding. For i NV synes jeg ikke rigtig at der var nok teori. Fordi når man så skulle til eksamen, så havde jeg en masse forsøg, og jeg vidste godt hvad vi havde lavet i dem. Men jeg havde ikke styr på hvorfor man lavede de forskellige forsøg, og sådan hvad det var man kunne perspektivere det til i virkeligheden. Og det var jeg sådan nød til at læse op på, og virkelig sætte mig ind i hvorfor man lavede de her forsøg. Men jeg kan også godt lide det der med, at man har noget tage udgangspunkt i som er lidt nemmere at forstå. Så en blanding af de to ting synes jeg.

Del 2

Undersøger. Så når du siger at Naturgeografi er mere spændende (i forhold til Fysik), er det måden der bliver undervist på der er mere spændende, eller er det emnerne der er mere spændende?

K. Det er begge dele. Altså måden at blive undervist på med sådan noget med at man kan sidde på Google Earth, og selv kigger på sådan nogle plader og se hvordan Verden hænger sammen og sådan noget. Det synes jeg er spændende. Men også sådan noget med naturkatastrofer og sådan nogen ting, og hvad for nogle konsekvenser det kan have til klimaet og alt sådan noget. Det synes jeg også er mere spændende end sådan nogle Fysik ting.

Manglende interesse for faget (negativ)

Interview L

Undersøger. Har dit forhold til faget (geografi) så ændre sig? Altså fra folkeskolen til nu her?

L. Ja, jeg synes. For mig så er den samfundsfaglige del en del mere spændende. Så det er blevet lidt mere kedeligt nu. Før var det 50 % af faget jeg kunne lide. Nu synes jeg det er sådan lidt mindre spændende.

Interview E

Undersøger. Glæder du dig mere til, at have det ene eller det andet? (om respondenter glæder sig mere til, at have naturgeografi end fysik eller vise vase)

E. Nej, ikke sådan lige umeldbart, tror jeg. Det er sådan meget lige for mig. Nu har vi jo ikke valgt den naturfaglige linje heller. Vi har sådan lidt. Vi har et neutralt forhold til det alle sammen i klassen, tror jeg.

Interview M

Undersøger. Har din holdning til faget geografi ændrede sig fra folkeskolen til nu her i gymnasiet?

M. Nej, det tror jeg ikke rigtigt. Jeg har aldrig rigtig været interesseret i geografi.

Undersøger. Nej, og du er heller ikke blevet mere interesseret i det nu her?

M. Nej, det er jeg ikke.

Undersøger. Må jeg høre lidt om hvilke typer fag du så godt kan lide?

M. Samfundsfag, Engelsk og Matematik.

Undersøger. Okay. Hvad for nogle fag kan du så godt lide? (Undersøger henvender sig til den anden respondent)

H. Samfundsfag, Engelsk og Idræt.