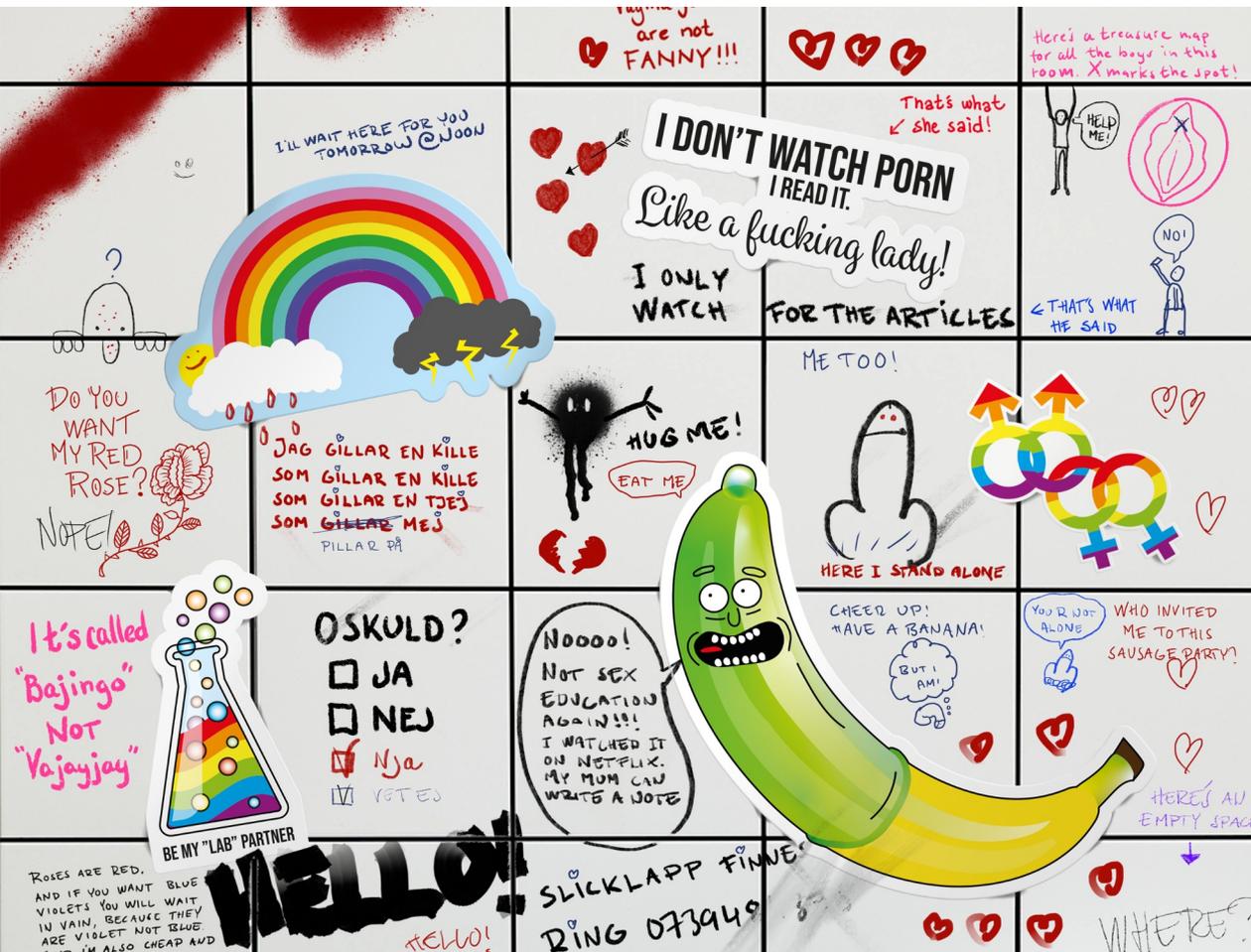


Becomings of Swedish secondary sexuality education

Enactments in natural science subjects and interdisciplinary teaching about pornography

Sara Planting-Bergloo



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Academic dissertation for the Degree of Doctor of Philosophy in Science Education at Stockholm University to be publicly defended on Monday 27 March 2023 at 13.00 in Vivi Täckholmsalen (Q-salen), NPQ-huset, Svante Arrhenius väg 20A, and online via Zoom, public link is available at the department website.

Abstract

This thesis is about Swedish secondary sexuality education with a particular focus on the becomings of natural science and pornography education. Recent scrutiny of the knowledge area has stressed the need for teaching to include student perspectives, cover more than mere medical and biological knowledge, and be more affirmative. Accordingly, the main aim of this thesis has been to investigate the becomings of lower and upper secondary sexuality education with a practice-based approach. A second aim has been to explore how the onto-epistemological framing could contribute to new understandings of what sexuality education could be and to make proposals for the teaching and learning of the knowledge area. Here, the theoretical positions offered by Karen Barad and Donna Haraway were used in analysis of teacher and student discussions on various phenomena related to sex and sexuality. The four studies forming the basis of this thesis further build upon engagements with four different schools—two lower and upper secondary settings, respectively. Data were produced through notes and audio recordings where the teachers discussed the construction of sexuality education, or from actual teaching in a class and student interviews. Study I engages with the teaching of genital anatomy and upper secondary students' notions of virginity. The results suggest that teaching should engage with a variety of perspectives, for example, traditions, norms, and values with regard to virginity. Study II focuses on upper secondary student engagements with contraceptive methods, in particular, the use of hormonal contraception and a mobile phone contraceptive application. The results show the need for teaching to problematise possible side effects of various contraceptive methods, and contraceptive responsibility. Study III breaks with the natural science framing and engages with an interdisciplinary teacher collaboration concerning education about pornography. The topic came into being as somewhat troublesome, having had too great a focus on the teaching, and it is therefore suggested that the topic be part of a wider context addressing gender equality, relationships, sexuality, communication, and consent. Study IV returns to the teaching of natural science sexuality education, but from a more general perspective. In this study, the teachers found ways to invite students to be part of the unfolding of the teaching and to challenge heterosexual and sex-negative premises common in sexuality education in Sweden and worldwide. Overall, in the four studies, sexuality education was enacted as a highly relational and explorative practice. Encounters with primarily the material world, but also time and space, further made teaching more student centred. It is suggested that sexuality education moreover not only be taught as a medical and biological phenomenon, but also in entanglement with perspectives on culture, religion, history, tradition, and societal norms.

Keywords: *Swedish sexuality education, practice-based approach, lower and upper secondary school, Karen Barad, Donna Haraway, student participation, material engagements, relationality, pornography education, virginity, contraceptive methods, science education.*

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To Linnea and Axel

Abstract

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Key words: *Swedish sexuality education, practice-based approach, lower and upper secondary school, Karen Barad, Donna Haraway, student participation, material engagements, relationality, pornography education, virginity, contraceptive methods, science education*

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I remained on the platform, watching my family taking their seats through the train window. Big tears rolled down my children's cheeks as the train started to move. In a last glimpse I saw them seeking comfort in their father's arms. As the train slowly disappeared into the distance, I was alone in Gothenburg on a chilly afternoon in early May. I cried a little too as I slowly began to walk towards the cottage where I was to stay in the forthcoming weeks to work on my first manuscript.

Writing a thesis is no solo effort. My decision to enter graduate school directly affected my closest family. Although I was only away a handful of times, I was often absent minded. Locking myself out the house, forgetting my wallet, or not remembering what colour toothbrushes my children had happened more than once. I also stayed at home to work while they were away on adventures and activities. So, all my love to Jimmy, Linnea and Axel for your patience and for understanding my decision. *Jag älskar er!*

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Stockholm, January 2023
Sara Planting-Bergloo

Studies included in the thesis

- I. Planting-Bergloo, S., Orlander Arvola, A. & Jakobson, B. (2022). Oskuld: Swedish upper secondary student conversations on virginity. *Sex Education*, DOI: 10.1080/14681811.2022.2040012
- II. Planting-Bergloo, S., Orlander Arvola, A. & Jakobson, B. (2022). The production of contraceptive cyborgs in Swedish upper secondary sexuality education. *Cult Stud of Sci Educ*, 17, 541–556, DOI: 10.1007/s11422-021-10086-0
- III. Planting-Bergloo, S. & Orlander Arvola, A. (2022). Challenging ‘the elephant in the room’: the becomings of pornography education in Swedish secondary school. *Sex Education*, DOI: 10.1080/14681811.2022.2137487
- IV. Planting-Bergloo, S. & Orlander Arvola, A. (submitted). How materialities and space-time travellings in class can breathe new life into Swedish secondary school Natural Science sexuality education. *Cult Stud of Sci Educ*.

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Part 2

Studies I–IV included in the thesis

1. Introduction

This thesis engages with the becomings of Swedish secondary sexuality education. The research focus has its origin in my own experiences as an upper secondary Biology teacher who taught the knowledge area for many years. As a teacher I found sexuality education intriguing. It was interesting, fun and engaging, but at the same time it made me sweat and blush. It also raised many questions, both for me and the students, to which I struggled to find answers. When entering science education graduate school, these wonders followed me into my research and became the starting point for my doctoral project. How these queries affected my research will be a recurring theme throughout the thesis.

This compilation thesis is based on three studies concerning the teaching of natural science sexuality education and a study on education about pornography. It is further divided into two parts. In the first part, the first chapter introduces Swedish sexuality education and identifies challenges within the field of knowledge. Some of these challenges have further formed the basis of the overarching research aims of the thesis. To frame the four studies more broadly, the second chapter is concerned with an overview of Swedish sexuality education history and research, and connections to European and international sexuality education research. Since the thesis is further positioned within the field of science education research, sexuality education is linked to the field, and in particular to research on controversial issues. Theoretical and post qualitative approaches used in the analysis of the data are more closely explored in the third and fourth chapter, and ethical dilemmas encountered during the research process are discussed in chapter five. The four studies are then summarised in chapter six, with a discussion on their joint contribution to the field of sexuality education research and its related school practice in chapter 7. Chapter eight comes into being as a Swedish summary. Accordingly, the first part links the overarching research aims to the production and results of each of the four studies.

In the second part, the four studies are presented. Largely due to my previous experiences as a practitioner, three of the four studies concern natural science sexuality education. All studies are further based on classroom enactments in two lower and two upper secondary schools, respectively. Two of these studies also involve explicit teacher–researcher collaborations and the construction of sexuality education. A brief presentation of the studies follows, below.

The first study engages with the teaching of genital anatomy and students' notions of women's virginity. In the study, the phenomenon of *oskuld* (virginity) was challenged by natural science explanations, but at the same time these notions made the students question their own anatomical knowledge. Since the results show that gendered notions of virginity are both persistent and a matter of interest and concern for students, it is suggested that sexuality education should explicitly address the topic in teaching.

The second study concerns education on contraceptive methods. Here, the students' resistance to the use of hormonal contraceptive methods and interest in a mobile phone contraception application formed the basis of an historical and cultural analysis of the preventive control of the woman body. Since the students also showed an interest in problematising possible side-effects of hormonal and mobile phone contraception and discussing gendered contraceptive responsibility, it is suggested that teaching also take these aspects into account.

The third study, however, has a different focus. It moves away from the focused natural science framing of the other studies and engages with an interdisciplinary teacher collaboration concerning education about pornography. The contemporary societal debate has not only engaged with school practice but has also resulted in a curricular revision that includes the topic in the curriculum. This thus highlights the need for investigations of pornography education within the Swedish context. The study shows organisational difficulties with teaching and challenges with engaging students in discussions beyond normative discourses circling in the media and in public debate. It is thus suggested that pornography education be taught as part of a wider context and addressed within discussions on communication, gender equality, relationships, sexuality, and consent.

The fourth study returns to the teaching of natural science sexuality education. It does not, however, investigate a specific educational phenomenon—such as virginity, contraceptives, or pornography—but engages in the breathing of new life into the teaching of natural science sexuality education in more general terms. In the study, the science

teachers challenged medical and preventive perspectives and heteronormativity, common premises in natural science sexuality education in Sweden and worldwide. Since imaginary space and time travels and material engagements were shown to be central for the construction of a more student-centred and sex-positive teaching, it is suggested that these be further acknowledged in the teaching of sexuality education.

Engagement with the work of the thinkers Karen Barad (2000, 2007, 2011, 2014) and Donna Haraway (1991, 1994, 2016) were central to the production of the studies. It is through their theories that relationality, entanglements and nonhuman agency became foregrounded in the analyses. Swedish sexuality education thereby came into being as an explorative, complex and collaborative practice, produced in intra-activity with material, spatial and temporal engagements (see, for example, Allen, 2018, 2021a; Renold, 2019; Ringrose et al., 2019). The emphasis on intertwinements further contributed to the understanding that, what is often considered medical and biological content, such as genital anatomy, contraceptive methods, sex, and reproduction, cannot be distinguished from its historical, cultural, religious and social context. Likewise, social aspects were shown to highly influence how pornography education came into being in classroom practice. Barad (2007) describes this relationality and nonhuman agency as material-discursive practices. Donna Haraway (1991) has acknowledged human and nonhuman relationality with, for example, the cyborg image.

How is Swedish sexuality education enacted?

In Sweden, school-based sexuality education has been mandatory for nearly seventy years. Over the years, the knowledge area has been enacted differently (Centerwall, 2005a, 2005b), and is today integrated into all stages of school and included in the syllabi of several school subjects. This means that each school subject must provide the students with different perspectives on what relationships and sexuality might entail (Swedish National Agency for Education, 2014a). Interdisciplinary collaborations between school subjects are further recommended to facilitate teaching of different perspectives (Swedish National Agency for Education, 2013a, 2013b, 2014b). Teaching of the knowledge area is also expected to promote gender equality (Swedish National Agency for Education, 2014a), a long term goal for Swedish schools (see, for example, Skolöverstyrelsen, 1969).

However, despite being compulsory for so long, a thematic quality review has shown that Swedish sexuality education varies in quality, both between schools and within the same school (Swedish Schools Inspectorate, 2018). One of the reasons for this might be the involvement of many teachers and most often, no one is given the overall responsibility to, for example, make sure the knowledge area is covered in each school subject (Unis & Sällström, 2020). In addition, the schools' work is rarely systematically constructed, and few schools' have a holistic approach to the knowledge area. Teachers have also expressed uncertainty about how sexuality education is connected to their school subject and found teaching rather challenging. For example, they identified among them a weak knowledge base on LGBTQ¹ (lesbian, gay, bisexual, transgender and queer) perspectives, were uncertain about how to manage opinions and discussions that conflicted with their school's values, and did not feel up-to-date on social trends (Swedish Schools Inspectorate, 2018). In a national survey, adolescents between the ages of 16 and 29 believed that schools provided adequate knowledge about anatomy, pregnancy and condom use but requested more information on gender, gender equality, relationships, LGBT perspectives, HIV and norms (Public Health Agency of Sweden, 2017). Upper secondary students have further confirmed that Swedish sexuality education is mostly concerned with negative perspectives on sexuality and sex, is heteronormative and old fashioned. Topics they identified as missing were, for example, abortion, sexual abuse, relationships, virginity and the myth of the hymen, and they wanted teaching to correct prejudices and misconceptions (Unis & Sällström, 2020). However, although it has been suggested that sexuality education take students' needs and preferences more into account (Unis & Sällström, 2020), they are rarely invited into the construction or evaluation of implementation (Swedish Schools Inspectorate, 2018).

The quality review from the Swedish School Inspectorate (2018), among others, formed the basis of the curriculum reform implemented on 1 July 2022. The reform, for example, aims to strengthen the quality and consistency of sexuality education teaching (Swedish National Agency for Education, 2019) and to achieve this, changes in subject-specific syllabi have been made. A new paragraph on consent, honour-related violence and oppression, and how relationships and sexuality

¹ Several different abbreviations of LGBTQIA+ (lesbian, gay, bisexual, transgender, queer, intersex, asexual, and others) are used in the studies to which my studies refer.

are portrayed in various media has been included in the introductory parts of the curriculum (Swedish National Agency for Education, 2022). Since sexuality education is high on the agenda today, it has also awakened questions on how teaching can be enacted in classroom practice. Although several classroom-based studies on, for example, the teaching of natural science sexuality education (Lundin, 2014; Orlander, 2016; Orlander & Lundegård, 2020; Orlander Arvola, 2014) and newly arrived students² have been conducted (Bengtsson & Bolander, 2020; Bolander & Bredström, 2021), there has been a call for more studies in the Swedish school context (Ketting & Ivanova, 2018). Since a practice-based approach in research also spoke to my own queries as a Biology teacher, the studies have engaged with in-situ investigations of the becomings of Swedish secondary sexuality education. The naming of schooling levels differs between British and USA education systems. In this thesis, secondary schooling refers to school years 7–9 and 10–12.

Overarching research aims

Previous scholarly results have stressed that Swedish sexuality education should be more affirmative, include students in the teaching and engage with topics that cover more than mere medical and biological knowledge. Thus, it follows that more classroom-based studies are needed. The main aim of this thesis has been to investigate the becomings of lower and upper secondary sexuality education with a practice-based approach. A second aim has been to explore how the onto-epistemological framing could contribute to new understandings of what sexuality education could be and to make proposals for the teaching and learning of the knowledge area.

The overarching research aims are answered throughout the first part of the thesis, ending in a joint analysis of the four studies in chapter seven. Together the studies show how Swedish sexuality education is enacted in classroom practices and can invite students to participate in

² The term newly arrived student refers to students who do not speak Swedish as their mother tongue, who struggle with the language and who came to Sweden close to the beginning of or during their school careers (Swedish Schools Inspectorate, 2009). According to the Swedish Education Act (2010:800 12 a §), however, students are no longer considered to be newly arrived after four years of schooling in Sweden.

its becomings. The studies also exemplify how the onto-epistemological framing might contribute to the field of sexuality education research and to the teaching of natural science and pornography education. The overarching aims can further be connected to each of the studies. Here, examinations of more specific phenomena contribute to understandings of Swedish sexuality education practice. The aim and key questions of each study is further outlined herein.

Aim and research questions for Study I

The aim of the study was to explore Swedish natural science sexuality education as a material-discursive practice, with a focus on the various notions of *oskuld* as spacetime-matter relations in two upper secondary classrooms. Here, the questions guiding the exploration were:

- How is the phenomenon of virginity enacted in student conversations?
- How might this affect the teaching of sexuality education?

The material-discursive framing made it possible to acknowledge spatial, temporal, and material engagements related to virginity in students' conversations and activities. Since this brought the intertwining of medical and biological knowledge with historical, cultural and religious notions of *oskuld* to the fore, the ways in which this can be enacted in the teaching of genital anatomy and related topics are discussed.

Aim and research question for Study II

The main aim of this study was to explore Swedish upper secondary students' notions of contraceptives. With a grounding in the cyborg image, this study holds the opportunity to both problematise and enable new perspectives on contraceptive methods in education. The question guiding this study was:

- How can students' notions of contraceptives challenge, problematise, and develop the construction of Swedish natural science sexuality education?

In the study, Haraway's cyborg image was used in investigations of students' notions and knowledge production on contraceptive methods. The theorising showed that gendered, perspectives, medical side effects and market-oriented interests in contraceptives were problematised in the students' discussions. The discussion is about how these perspectives could further affect the teaching of contraceptive methods.

Aim and research questions for Study III

Research on education about pornography is often based on group discussions or semi-structured interviews, the observation of extra-curricular activities, or online questions and surveys. This study takes a different approach with an in-situ investigation of pornography education. The questions guiding the study were:

- How can pornography education come into being?
- What troubles are materialised when this occurs?
- What future forms of teaching might be possible?

The research questions brought into being investigations of the construction and implementation of education about pornography. Since the teaching of the topic was shown to be complex and normative, which made it difficult to produce discussions among the students, suggestions for schools' further work on this topic are made.

Aim and research question for Study IV

Swedish and international research have concluded that sexuality education is mostly concerned with medical and sex-negative perspectives. Consequently, this study aims to investigate how these approaches could be expanded to include more discussions about relationships and sex positivism and how students can more actively become part of the production of sexuality education. The question guiding the study was:

- How can material, spatial, and temporal engagements produce new becomings of Swedish Natural Science sexuality education?

As the research question shows, material, spatial and temporal engagements came into being as central in the fourth study. Since these engagements not only invited students into teaching, but also showed sexuality education to be a collective, relational, and explorative practice, suggestions for the teaching of natural science sexuality education are made.

It is possible to engage with the content of this thesis in several ways. It can either be read from cover to cover, as one would a book, or by starting with the articles in part two before moving on to the first part. A short overview of the studies is also offered in chapter six.

2. Background

This chapter begins with a discussion on the naming of the knowledge area which is the focus of this thesis, *sexuality education*, followed by a historical and more contemporary description of the Swedish practice, including my own experiences from teaching within this field. It then moves to summarising Swedish sexuality education research and since the thesis is positioned within science education research, a discussion on the teaching of controversial issues connecting the two fields of research. The chapter ends with an international and European overview.

From sex to sexuality

The word ‘sexuality education’ has been used consistently in the text so far. Engagements with the English naming of the knowledge area did not, however, come into being as easily since there appears to be no consensus on the terminology internationally (Allen & Rasmussen 2017). ‘Comprehensive sexuality education’, ‘sex education’ and ‘sexuality education’ seem to be the labels most often used. The term comprehensive sexuality education (CSE) was introduced in the 1990s, and became widely accepted when it was defined in the UN-published and -revised 2018 edition of ‘International Technical Guidance on Sexuality Education’ (Ketting et al., 2021). CSE refers to teaching that is, amongst others, science- and curriculum-based, culturally relevant and adapted to the students’ ages and understandings (UNESCO, 2018). Although Swedish sexuality education is considered to meet the specific criteria of CSE (Ketting et al., 2021), another term was chosen to be used in this text. ‘Sexuality education’, in contrast to ‘sex education’, is to be understood as referring to more than mere biological or sexual behaviour (Schroeder, 2009). Since this approach supports teaching that strives for an openness to relational aspects, social norms, cultural values and traditional beliefs, it fits well with this thesis.

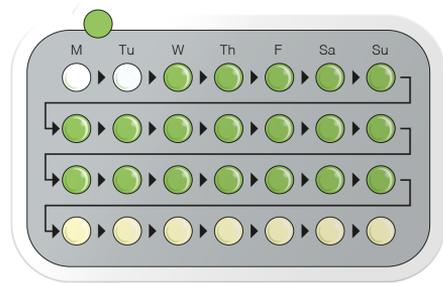
The Swedish knowledge area also comes with several terms. Although the original expression was *könslivets biologi och hygien* (sex life and hygiene) it later became *sexualundervisning* (sexual or sex education) (Lindgren & Backman Prytz, 2021, 2022). In more recent times, the knowledge area has been called *sex- och samlevnadsundervisning* (sex and cohabitation education [my translation]), translated into ‘sex education’ by the Swedish National Agency for Education (2014a). Since the terminology has been criticised for not acknowledging a broad approach to sexuality education (Swedish National Agency for Education, 2019), it was recently changed to *sexualitet, samtycke och relationer* (sexuality, consent and relations [my translation]) (Swedish National Agency for Education, 2022). In the shift, ‘sex’ was replaced by ‘sexuality’, a word encompassing more than mere sexual activity. The rather dated word ‘cohabitation’ was further replaced with the more modern expression ‘relations’ (Swedish National Agency for Education, 2019). ‘Consent’ further emphasises “the importance of sexuality and relationships being characterised by consent” [my translation] (Swedish National Agency for Education, 2022, p. 8), a topic widely debated at the time of the curricular revision.

Since this thesis came about during the name change of the knowledge area, the shorter and more general terms *sexualkunskap* (sexual knowledge) and *sexualundervisning* (referring to sexuality education) have been used in the Swedish summary (chapter 8).

Past Swedish sexuality education

Around the end of the 19th century, feminist initiatives contributing to sexuality education eventually starting to become part of school-based teaching. In addition to producing and participating in debates, publishing books and organising summer courses, for example, women physicians gave lectures to school teachers and to schools in Stockholm (Levin, 2004). To protect women and girls and so as not to risk arousing men’s sex drives, teaching was first aimed at women and mainly concerned puberty, foetal development, and pregnancy. From 1906, men could also receive education on sexual hygiene (Levin, 2004). Over some decades, various actors, including women’s unions, politicians, private persons and the Swedish Association for Sexuality Education (RFSU) worked consistently to make sexuality education the responsibility of schools (Centerwall, 2005a; Lennerhed, 2000;

Lindgren & Backman Prytz, 2022). Schools, as opposed to legal guardians, were considered to be important actors for delivering this kind of sensitive knowledge. Accordingly, teacher training courses were organised in various parts of the country during the 1940s (Lindgren & Backman Prytz, 2021). In 1942, guidelines for higher elementary school education, with detailed descriptions on what to teach, were released. The proclamation was, however, soon critiqued for being backward, especially in terms of premarital sexual activity (Centerwall, 2005a). Despite the criticism, however, sexuality education, based on the criticised guidelines mentioned above, was made compulsory for all stages of Swedish schooling in 1955 (Centerwall, 2005b). Not until the end of the 1970s was this approach replaced with more contemporary views on sexual responsibility through the advocacy for contraceptive methods (Bolander, 2015; Sandström, 2001). During the 1980s, school-based sexuality education began focusing on risk, before returning to the idea of sexual responsibility.



An example of a hormonal contraceptive method.

More positive views on sexuality were to be strengthened through encouraging students to practise responsible decision-making, and by inviting students to actively participate in the construction of sexuality education (Centerwall, 2005b). Youth clinics also grew in numbers and became a support for both school-based and informal sexuality education by providing in-service training for teachers and information and contraceptives for adolescents (Centerwall, 2005b). These institutions still serve an important function, mostly for lower secondary students, whose schools often organise for them to visit the nearest clinic. In the work on this thesis, it also became apparent that the Youth Clinic's website (www.umo.se) is often used in teaching. Teachers in three of the studies reported using the website in their teaching and recommending it to students as a trustworthy source of further information.

In the middle of the 1990s, a curriculum reform (Swedish National Agency for Education, 2006b, 2006a) brought further changes to the teaching of the knowledge area. Even though sexuality education had been presented as part of several school subjects ever since it had been made compulsory in the 1950s (Hultén, 2008), it now became interdisciplinary. Its explicitness was at the same time removed from upper

secondary Biology syllabi and in the introductory parts of the curriculum, to be replaced with a general statement on each principal's responsibility (Gunnarsson & Ceder, 2021). Teaching was henceforth often organised around themed days or as part of local courses. Upper secondary students thereby often got sporadic and limited knowledge while sexuality education was still part of subject-specific teaching in compulsory school (Swedish National Agency for Education, 2000).

This brief introduction to Swedish sexuality education history has not aimed at providing a detailed summary of all the reforms, debates and initiatives that have taken place through history. For further information, I recommend the work of Lindgren, Backman Prytz and their colleagues (see, for example, Lindgren & Backman Prytz, 2021, 2022). It is rather supposed to show that even since before the establishment of mandatory and school-based sexuality education, what the teaching aims to achieve, what content is to be included, and how it should be taught has constantly been debated. Nowadays, however, teaching is not as finely regulated as it was during the first decades of implementation, and although this gives teachers the freedom to adjust teaching to include current topics and to meet the needs of the students, it can also produce ambiguities about how sexuality education can be enacted. This is something I have experienced myself in teaching and which has also affected how this thesis came into being. This retrospective thereby omits the 1990s and moves into the 21st century and a summary of the more contemporary teaching of sexuality education.

Present Swedish sexuality education

In my first years as a newly graduated upper secondary Biology teacher, the curriculum for the non-compulsory school system (Lpf 94) from 1994 was applied (Swedish National Agency for Education, 2006b). Since this meant that sexuality education was not part of the school subject Biology, mentioned in the previous paragraph, my own first experiences with teaching were within the context of the 2011 curriculum reform (Swedish National Agency for Education, 2012a). Then, the knowledge area was made explicit in Biology and Science Studies syllabi again (Swedish National Agency for Education, 2011, 2012b) as well as in several other subject-specific syllabi. The strengthening of sexuality education in school policy also came to be

concerned with the introduction of a new approach to teaching, namely, norm-critical pedagogy (Gunnarsson & Ceder, 2021).

Norm-critical perspectives on teaching

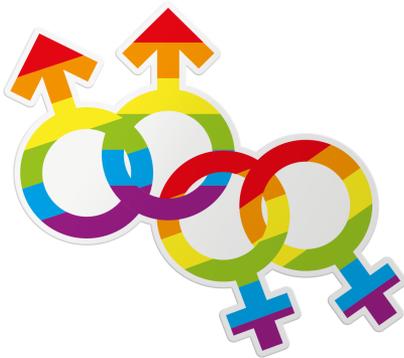
Norm-critical perspectives and norm-critical pedagogy³ have gained wide support within the Swedish educational system in the past decade (Björkman et al., 2021). These were first introduced by Bromseth and Darj, amongst others, in 2010, as a critique of the ‘tolerance pedagogy’ that had been part of the school’s anti-bullying programmes during the first part of the 21st century (Bromseth, 2010). Simply described, the pedagogy of tolerance is built upon the logic that those who are most often considered norm(al) should learn to tolerate those who might come into being as different (Langmann & Månsson, 2016). In contrast to this view, a norm-critical pedagogy, developed from queer pedagogy (Björkman et al., 2021; Bromseth, 2010), influenced by the work of Kevin Kumashiro (2000, 2002), turns its gaze towards the norm itself. By identifying how power, norms and social categorisations are constructed and then reproduced, consequences for individuals and society are to be problematised (Hill, 2021). Implementation in practice does not, however, come without struggles (Bredström et al., 2018; Lenz Taguchi, 2011). Due to its rapid spread throughout the educational system, a variety of understandings of its practice have arisen. Some of these will be further outlined in the next section and in the studies of this thesis. The approach has also been criticised for enforcing ideologies and norms about how to think and act in teaching (Björkman et al., 2021). Its construction and enforcement is also to be viewed as a phenomenon specific to the Swedish context (Hill, 2021). Internationally, similar approaches are often referred to as social justice or inclusive education (Orlander Arvola, 2021) or critical pedagogy (Bredström & Bolander, 2019).

In 2013, regulatory guidelines (Swedish National Agency for Education, 2013a, 2013b, 2014b) introduced norm-critical pedagogy as an approach to sexuality education. It was here suggested as a way to tackle discrimination and abusive treatment and to include different sexual identities in teaching (Gunnarsson & Ceder, 2021). However, scholars positioned within the field of sexuality education research have lately criticised norm-critical perspectives for favouring certain

³ The term ‘norm-awareness approach’ [my translation] is used in the curriculum for the compulsory school system, the pre-school class and the leisure-time centre (Lgr 22) (Swedish National Agency for Education 2022, p. 12).

sexual values over others (Bengtsson & Bolander, 2020; Bredström et al., 2018)—a critique that I will return to later in this chapter.

To broaden the view of how norm-critical pedagogy took form in school practice in the early years of the 2010s, I will share some of my own experiences from teaching in an upper secondary school in the central parts of Stockholm. Several colleagues' initiatives to read beyond Western literature and to question whose history was taught in school, along with a more general project aimed at reviewing the restrictive norms dominating civics education, inspired me and my Biology teacher colleague to engage with norm-critical perspectives in the of teaching sexuality education. Upper secondary Biology sexuality education is somewhat based, however, on medical premises (Swedish National Agency for Education, 2011), whereupon we came up with the idea of constructing a lesson on the hormones involved in the control of love and desire. Accordingly, the first lesson began with the screening of parts of the lecture *Njutningens kemi* (The chemistry of pleasure [my translation]) by Professor Ulf Ellervik, recorded at the Natural History Museum in Stockholm in 2013. In the lecture, Ellervik makes a genderless distinction between desire, limerence and love, a content we naively thought was a norm-critical entry into sexuality education, in contrast to a focus on physiological and hormonal



Inclusion of LGBTQ perspectives into teaching.

differences between the sexes.

About five minutes into the screening, however, a student loudly claimed that the lesson still had a heteronormative premise and that, for example, the concepts cis and trans and LGBTQ perspectives were missing. The outburst triggered a long and informative conversation between us and the student in question regarding their expectations about what perspectives on sexuality education would be engaged, which also came into being as most helpful in developing

our teaching in general. This school, it must be said, attracts students interested, in particular, in queer and feminist issues. Often, both students and teachers practise language activism, for example, through the use of gender-neutral pronouns, as part of a norm-critical peda-

gogy (Årman, 2021; Bengtsson & Bolander, 2020). Since this particular premise in teaching also takes different forms in the studies of this thesis, consequences for research practice are further outlined in the fifth chapter, under the heading ‘Ethical struggles in research practice’ and in the concluding discussion (chapter 7).

It was not only struggles with practicing a norm-critical pedagogy, but also experiences from teaching newly arrived students that followed me into research practice. These perspectives will be outlined in the next section.

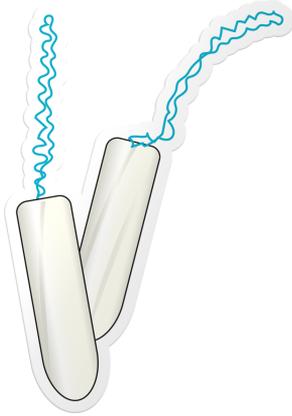
Sexuality education—for whom?

From 2012, I had the opportunity to teach newly arrived students in the school’s language introduction programme. While the students’ ages corresponded to upper secondary school, they studied a language preparatory programme framed by the lower secondary curriculum. My involvement in the programme later came to coincide with the surge in immigration and an increase of newly arrived students in Swedish schools (Swedish National Agency for Education, 2015). In the wake of this surge, a societal debate on sexuality education targeting this particular group of students followed (see, for example, Swedish Schools Inspectorate, 2018), resulting in programmes and educational material aimed at the teaching of this specific group of students (Bredström & Bolander, 2019). For example, the Swedish Association for Sexuality Education (RFSU) produced a method book, ‘Sexual education in easy Swedish⁴’ (Dahné, 2019) and the Swedish National Agency for Education provided films and a national conference for school staff. Simultaneously, other sexuality education programmes for immigrants were being initiated in other European countries (Ketting & Ivanova, 2018).

As a teacher, I was also affected by the debate. For several years I invited educators from the Swedish Association for Sexuality Education to use the newly published method book in classes at my school. Although the work of RFSU was instructive, I was also left in doubt as to whether the external educators and I were managing to engage the students’ interests and realities. It was often silent in class. This became particularly evident when an external educator introduced the word ‘vaginal corona’ and explicitly dismissed the myth of the hymen. Since the Swedish as a second language (SAS) teacher and I

⁴ Since there is no English translation of the educational material, the same translation as in Bredström et al. (2018) and Bredström and Bolander (2019) has been used.

were sitting at the back of the classroom, we witnessed one of the students turning to another and whispering words to the effect of: “It certainly does exist! They are just saying that!” Inspired to a great extent



The functioning of tampons investigated in laboratory.

to meet the needs and questions of the students, my colleagues and I soon took on the task of teaching sexuality education by ourselves. From my side, practical activities and engagements with materialities, for example, in the form of laboratory work on tampons, condoms and sanitary pads, became central in facilitating opportunities for students to address topics of concern. In the laboratory, whilst working, the students asked questions about why there were different sizes of tampons, how often menstruation occurs and why there were different kinds of condoms. These questions may have been awakened by their explorations of materialities related to the body’s functioning—the informal atmosphere, with small groups, and where everyone was occupied with their own explorations might also have contributed to an environment conducive to the asking of questions. On one occasion, a group of students showed me pictures on their mobile phones of what was supposed to show the maidenhead, resulting in a long and interesting discussion on expectations, cultures, religions, gender, and power structures. These and several other eye-opening moments made me wonder what Swedish sexuality education was aiming to achieve and at whom it was aimed. When I later entered science education graduate school, my interest in an inclusive and material teaching practice grew and soon became central to the becoming of the thesis (see, for example, Study I).

My own queries on the inclusion of student perspectives and the use of a norm-critical pedagogy in teaching have also been the subject of Swedish sexuality education research, which will briefly be outlined, below.

The field of Swedish sexuality education research

In several studies, Bredström, Bolander and Bengtsson investigated sexuality education aimed at students from segregated areas with a migrant background. Teaching here takes a norm-critical pedagogical approach and/or includes initiatives and activities from the Swedish Association for Sexuality Education (RFSU). Results showed that sexuality education was mostly inclusive in terms of LGBTQ perspectives (Bengtsson & Bolander, 2020; Bredström et al., 2018). The teaching of newly arrived students was often based on a deficiency perspective and what were considered to be students' needs, rather than taking students' own experiences and previous knowledge into account. Perspectives on religion, tradition and racism were also missing (Bolander & Bredström, 2021). Not addressing these perspectives in teaching (to avoid conflicts around values) should be regarded as a counterproductive and 'colour blind' strategy (Bredström, 2016; Bredström & Bolander, 2019). Accordingly, the authors suggest that sexuality education seek to be more sensitive to the diversity among students and seek ways to manage different views on sex and sexuality in the teaching (Bredström et al., 2018; Bredström & Bolander, 2019).

As outlined in the Introduction and first part of this chapter, Swedish sexuality education research has also been concerned with its historical becoming (Lennerhed, 2000; Levin, 2004; Lindgren & Backman Prytz, 2021, 2022; Sandström, 2001), with various evaluations and surveys (Public Health Agency of Sweden, 2017; Swedish Schools Inspectorate, 2018), and with students' general perspectives on the teaching of the knowledge area (Unis & Sällström, 2020).

Löfgren-Mårtensson has engaged with sexuality education for students with intellectual disabilities. Interviews with students in special-needs education showed the focus to be on love and friendship more than sexual feelings. But since the teaching was also mostly concerned with sexual risks and was heteronormative, it was suggested that the students' own perspectives (Löfgren-Mårtensson, 2012, 2015) and a variety of sexualities should be included (Löfgren-Mårtensson, 2009). In another special-needs education study, Lukkerz (2015) showed that views on girls' and boys' sexuality differed among staff. Girls were often regarded as the objects of boys' sexual interest and not the other way around. With the staff, there was also a weak belief in their own ability to teach sexuality education. A more recent interview study among teachers in special-needs schools also showed teaching to be

heteronormative, but gave a slightly different picture with regard to the teaching of the knowledge area (Nelson et al., 2020). Teaching covered a broad range of topics, and the teachers were motivated and had access to adequate teaching resources. The results did, however, show challenges with including perspectives on culture and religion. The study not only indicates progress for the teaching of students with intellectual disabilities (Nelson et al., 2020), but could also point to the varying quality of sexuality education among schools (Swedish Schools Inspectorate, 2018).

There are several studies related to the teaching of natural science sexuality education—for example, analyses of Biology textbooks. Although sexuality education was shown to be part of lower secondary textbooks (Biström, 2022; Junkala et al., 2021), content was mostly reproductive, androcentric and phallogentric (Biström, 2022). Junkala et al. (2021) also concluded that, in the textbooks, reproduction mostly comes into being through stereotypical descriptions of the egg as passive and the sperm as active in the fertilisation process (Martin, 1991). However, several of the books studied were concerned with dismissing the myth of the hymen and introduced the concept of vaginal corona as a way to counteract these notions. Transgender and sexual orientation was further shown to be standard content in the books (Junkala et al., 2021). Although Lundin (2014) has shown that lower secondary Biology education comes into being as rather heteronormative, this premise has been challenged by several of my own studies (see, for example, studies I, II and III).

Fridolfsson et al. (2019) have engaged norm-critical perspectives to investigate norms related to gender and sexuality in upper secondary natural science sexuality education and several studies by Arvola Orlander have confirmed that gender is actively construed in Biology education (Orlander, 2016; Orlander et al., 2015). With the purpose of distancing teaching from personal discussions, one of Arvola Orlander's studies drew parallels between human and animal sexual behaviour. The teaching, however, did not turn out as expected and resulted in anthropomorphism, an emphasis on reproduction and virginity coming into being as an important attribute (Orlander, 2016). In another study, role plays were used to discuss relational dilemmas in Biology education. Here, the active role and the dilemmas came into being from the boys' perspective, thereby contributing to the maintenance of norms related to masculinity and femininity, leaving little

room for other portrayals (Orlander et al., 2015). Similarly, the starting point for the teaching of genital anatomy was oriented towards men (Orlander Arvola, 2014).

This overview of the field of Swedish sexuality education research ends with a summary of studies related to the teaching of natural science sexuality education. This thereby also works as an entry point to the field of science education research, within which this thesis is positioned.

Teaching controversial issues in science education

Since science education research is a comprehensive and diverse field, it was decided to position this thesis within the area of controversial issues. According to the Council of Europe, controversial issues are “issues which arouse strong feelings and divide opinion in communities and society” (Kerr & Huddleston, 2015, p. 8). This area is also a major concern for Swedish biology and civics education. According to a quality review by the Swedish Schools Inspectorate (2022), teachers avoid addressing certain topics so that specific student groups do not feel targeted and to eschew conflicts between students. Issues that Biology teachers considered to be particularly sensitive were, for example, sexual orientation, circumcision, virginity, contraception, consent and pornography. According to the Swedish schools’ new commission, issues around honour-related violence and oppression, consent and pornography must be engaged and taught (Swedish National Agency for Education, 2022). These results further coincide with the previously mentioned call for sexuality education to include perspectives on culture and religion and to not avoid conflictual areas (Bolander & Bredström, 2021; Bredström & Bolander, 2019). The Inspectorate’s review, on the other hand, reported that students were rarely given the opportunity to discuss controversial topics under the guidance of a teacher. Discussions were most often organised in whole class discussions dominated by a few students’ voices, or in smaller groups without teacher support. The students themselves also felt uncomfortable expressing opinions with peers (Swedish Schools Inspectorate, 2022).

Although the concept of controversial issues is mostly linked to social studies or social science research (Hess, 2008; Larsson, 2019), it has been used by the Council of Europe to describe these challenges in teaching in general (see, for example, Kerr & Huddleston, 2015). Hess

(2008) described the term as having a plethora of definitions, with the goal of teaching students how to deliberate on controversial topics and to actively participate in a democratic society.

However, in science education research, these kinds of complex dilemmas are often referred to as wicked problems or socioscientific issues (SSI). Wicked problems are described as being context dependent, open-ended and having no fixed answers or solutions (Rittel & Webber, 1973). Block et al. (2019) have further described them as including conflicting values and contested or uncertain expert knowledge. Socioscientific issues are defined as those which have their basis in science but which engage students in real-life situations of local, regional and global concern (Ekborg et al., 2013). These issues are moreover often controversial in character and involve ethical concerns, moral reasoning and decision-making (Zeidler & Nichols, 2009; Zeidler & Sadler, 2008). Facts and values are thereby viewed as intertwined (Rundgren et al., 2016). Teaching of socioscientific issues, it is argued, does not only prepare students to democratically participate in society (Kolstø, 2001), but is a way to engage in scientific activism and is a politicised form of citizenship (Bazzul, 2015).

Since this thesis engages with how the teaching of controversial topics can be enacted, the investigations into virginity (Study I), contraceptive methods (Study II), and education about pornography (Study III) contribute, not only to sexuality education research and practice, but also to fields of research concerned with controversial issues, socioscientific issues and wicked problems.

Sexuality education internationally

This chapter ends with an international overview of sexuality education. Summarising international perspectives on the knowledge area is, however, not an easy task and I will therefore focus mainly on the European context and on areas covered in the studies.

How sexuality education comes into being is highly dependent on its context. While it is mandatory in some countries, it is considered controversial in others. It causes, for example, opposition in Eastern Europe and in Central Asia, but is not controversial in Belgium, Sweden, Finland, Estonia and the Netherlands (Ketting & Ivanova, 2018). In a study of 23 European countries, nine of them had implemented comprehensive sexuality education (CSE) programmes. However, in ten of the countries, teaching was not considered comprehensive as it

only focused on bodily aspects of sexuality, and symptoms and prevention of sexually transmitted infections (STI). In Ireland, there was also a discrepancy between legal regulations and practice since teaching often promoted abstinence, which is an unusual approach in Europe (Ketting et al., 2021). It has also been shown that Polish adolescents have limited access to sexuality education (Izdebski et al., 2022). Teaching was also mostly based on conservative, heteronormative and patriarchal values (Woźniak, 2015). In Hungary, the anti-gender movement has removed gender ideology and gender identity matters from the national curriculum, which now focuses on heterosexual family life (Vida, 2019). Bulgaria, Georgia, the Russian Federation and Serbia do not provide school-based sexuality education at all (Ketting et al., 2021).

To widen the scope from the European to an international context, sexuality education in Canadian provinces and USA states varies among regions (Hunt, 2022; Maitland, 2022). There is also extensive support for both comprehensive and abstinence-only-based sexuality education (Fields, 2008; Hunt, 2022; Lashof-Sullivan, 2015; Maitland, 2022). Practice is, however, more diverse than policy might suggest (Fields, 2008; Fine, 1988) and teaching that addresses LGBTQ+ perspectives, STIs, and the use of contraceptive methods are slowly becoming more common (Jarpe-Ratner, 2020; Maitland, 2022; Roberts et al., 2020).

A quality synthesis including studies from Iran, Ireland, Canada, the USA, Australia, Sweden, New Zealand, Japan, Brazil, and the UK showed that sexuality education did not engage the needs and perspectives of sexually active students. Neither did it affirm the specialness of the knowledge area and was rather taught as an ordinary subject. Students were ambiguous about whether sexuality education should be delivered by teachers whom they knew or by sexual health professionals (Pound et al., 2016). A recent systematic review of reviews (RoR) has further shown that school-based sexuality education generally focuses on risk behaviours and sex-negative messages (Lameiras-Fernández et al., 2021). Teaching centred around risks such as STIs and pregnancy and often tended to be heteronormative (Allen, 2007). Qualitative studies from the Netherlands, Australia and Norway have, however, stressed the need for teaching to engage with relationships, a variety of sexualities, and real-life scenarios (Cense et al., 2020; Helbekkmo et al., 2021; Shannon & Smith, 2015).

Several scholars have also called for sexuality education to engage with religious and cultural perspectives (see, for example, Rasmussen,

2016, 2017; Rasmussen et al., 2022; Sanjakdar, 2018; Sell & Reiss, 2022; Svendsen, 2017). According to Rasmussen (2016, 2017), religious perspectives will always be central to many young people and therefore these perspectives need to find their way into sexuality education. Sexuality education should thus be faith sensitive, not only for the sake of students of faith, but also for other students (Sell & Reiss, 2022). Svendsen (2017) has further problematised Nordic sexuality education as being dichotomously constructed. Cultural differences and norms are addressed in social science school subjects and are therefore not part of more biologically oriented teaching. Fida Sanjakdar (2018) has suggested that engagements with religious perspectives have the potential to facilitate a more inclusive and contemporary sexuality education.

An extensive body of research has also been concerned with pleasure-oriented perspectives in sexuality education. Fine's (1988) ground-breaking work on the missing discourse of desire triggered a debate on the inclusion of (in particular women's) pleasure in sexuality education (Lamb et al., 2013). This led to, for example, Allen (2001, 2004) suggesting the inclusion of a "discourse of erotics" in sexuality education as young people often lack the language to express and negotiate their desire (Allen & Carmody, 2012). However, criticism soon came to show that this pleasure imperative had its limitations (Allen & Carmody, 2012) since it was so often associated with sex-negative outcomes such as STIs, regret, impulsiveness and pregnancy (Lamb et al., 2013). It also been shown that normalising pleasure in this way might lead students to think and feel that this is something that they should achieve (Allen & Carmody, 2012; Wood et al., 2019).

As this overview shows, many of the international scholarly concerns are also echoed in the Swedish context. For example, it has often been stated that sexuality education teaching tends to be more interested in medical and sex-negative content than it is in relationship matters (Public Health Agency of Sweden, 2017; Swedish Schools Inspectorate, 2018; Unis & Sällström, 2020). It also has difficulties with including religious and cultural perspectives (Bolander & Bredström, 2021; Bredström et al., 2018; Bredström & Bolander, 2019). How these premises can be challenged in practice is also central to this thesis.

3. Theoretical engagements

This thesis engages with the work of the feminist thinkers Karen Barad (2000, 2007, 2011, 2014) and Donna Haraway (1991, 1994, 2016) and their theorising of the ‘material’ or ‘ontological’ turn (Bodén et al., 2019), a multifaceted orientation associated with many terms. Just to mention a few positions, this turn has been called feminist materialism (Haraway, 1991), agential realism (Barad, 2007), post qualitative studies (St. Pierre, 2011), posthumanism (Braidotti, 2019), new materialism (see, for example, Cole & Frost, 2010), sociomaterial approaches (Fenwick & Edwards, 2013), PhEmaterialism (Ringrose et al., 2021), inclusive materialism (de Freitas & Sinclair, 2013), and ontology of becoming (Bergstedt, 2021). Although these theorisations differ, they do share some common principles (Bodén et al., 2019; Ringrose et al., 2021) which include: a fidelity to feminist thinking and practice and the role of materiality in cultural and social practices (MacLure, 2013a); a decentring of humans, a focus on becoming(s) rather than a state of being and the foregrounding of complex material-discursive and affective relations in analysis (Ringrose et al., 2021). Accordingly, it is suggested that this theoretical orientation has the potential to ‘propose new understandings of what humans are and can become’ in a material world (Hasse, 2020, p. 3).

In the naming and framing of the theories I used, I decided to stay true to the theorists. When applying the Baradian theoretical framework in the studies, I used the concepts agential realism and ethico-onto-epistemology, while Haraway’s theorising came into being via techno-biopolitical cyborgs, tentacular thinking and string figuring. However, when Baradian and Harawayan theorising are addressed jointly, variations of the term ‘ethico-onto-epistemology’ are used. Although this term is attributed to Karen Barad (2007), the inseparability of ontology, epistemology and ethics is a common premise. Other similarities are a more science-based theorisation (Bodén et al., 2019), a position which appealed to a science teacher studying natural science sexuality education.

Onto-epistemological point of departure

Karen Barad's (2007) agential realism draws upon several philosophers, the most notable of whom are Niels Bohr, Michel Foucault, Judith Butler and Donna Haraway. Central to the theoretical framework, is the criticism that language and discourse have been given too much attention at the expense of materiality. Accordingly, matter is re-centred, and discourse and materiality are viewed as mutually entangled (Barad, 2007). Our becoming (ontology) is further regarded as inseparable from knowledge production (epistemology) (Bergstedt, 2021; Plauborg, 2018; Ringrose et al., 2021). Barad (2007, p. 185) has described this in terms of 'knowing-in-being':

Practices of knowing and being are not isolable; they are mutually implicated. We don't obtain knowledge by standing outside the world; we know because we are of the world. We are part of the world in its differential becoming.

Being part of the world's ongoing articulation further means to be responsible and accountable for what is enacted (Barad, 2007). Donna Haraway (1988, 2016) earlier called this situated knowledge and has lately stressed the need to cultivate 'response-ability' within research practices, especially in relationships with more-than-humans. In chapter five, I discuss in more detail how ethical considerations came into being during the production of this thesis. The agential realist framework also questions presentations of the world as dichotomously constructed and as constituted of independent objects with determinate properties and boundaries. The world is rather viewed as relational and coming into being through phenomena, units of reality enacted via specific space, time and matter intra-actions (Barad, 2007). I will return to this soon, but with an educational framing.

As mentioned in the beginning of this chapter, the work of Donna Haraway has influenced the agential realist account, which has received much attention in this chapter. There are, however, a few more specific Harawayan points to make. Through the thinking with cyborgs and human-animal relations, Haraway (1991, 2016) has worked to transgress human-nonhuman, nature-culture and nature-technology dichotomies (Ringrose et al., 2021). Her theorising on string figuring (SF), on the other hand, materialises collective agency (Niccolini et al., 2018) and the need for speculative futures (Tolbert & Bazzul, 2020). Tentacular thinking and its accompanying appendages are yet another form of string figuring (Haraway, 2016). Since Haraway (2016, p. 3) moreover urges research to stay 'with the trouble in real

and particular places and times’, this thesis acknowledges teachers’ and students’ concerns with regard to sexuality education.

This means that the four investigated phenomena of Swedish sexuality education were enacted in specific and situated contexts of human and nonhuman intra-activity (Allen, 2018).

Onto-epistemological approaches to learning

Within this onto-epistemological position, learning is regarded as taking ‘place *right in the middle of things*, in our very living and doing pedagogical practices’ (Lenz-Taguchi, 2010, p. 61, italics in original). This means that every learning situation is enacted in collaboration with the world, and with different kinds of knowledge (Bergstedt, 2021; Hasse, 2020). Learning is thereby viewed as a process of intra-activities between humans, materialities, and discourses at hand (Lenz-Taguchi, 2010; Plauborg, 2018) that also moves beyond nature-culture, subject-object and mind-body dichotomies (Plauborg, 2018). Accordingly, learning becomes an open and emergent phenomenon (Hasse, 2020) and educational research becomes about investigating established connections, entanglements and relations (Plauborg, 2018). However, in studies I–IV the word ‘learning’ was barely used. This process was rather described in terms of knowledge production, education and teaching. In further engagements with learning approaches situated within this field, learning comes into being as a widely used word (de Freitas & Sinclair, 2013; Hasse, 2020; Lenz-Taguchi, 2010; Plauborg, 2018) and will also be used in this text.

Although several learning theories associated with the onto-epistemological field of research (see, for example, Ceder, 2015; de Freitas & Sinclair, 2013; Hasse, 2020; Lenz-Taguchi, 2010; Plauborg, 2018) have been proposed, this thesis uses the work of the Danish educational researchers Hasse (2020) and Plauborg (2018). Since much of my data consist of words, i.e., student and teacher conversations on sexuality education, Hasse’s (2020) elaboration on the materiality of words has been important (see Study I). Here, Plauborg’s theorising offers further help in elaborating on spatial and temporal entanglements within the learning process.

Space, time and matter enactments in learning

Within this onto-epistemological orientation, materialities are considered agential in their relations (MacLure, 2017; Plauborg, 2018). This, in turn, has stressed the need to acknowledge human and material entanglements in learning, and to view knowledge production as a relational and material practice (Bodén et al., 2019; Hasse, 2020). Similar suggestions have come from science education (Milne & Scantlebury, 2019) and sexuality education research. Several scholars have shown that materialities intra-act with students in their learning processes. For example, rulers, playdough and felt tips challenged phallogocentric views on sex and sexuality and made teaching a more diverse and complex practice (Renold, 2019; Ringrose et al., 2019). However, this point of departure frequently presents challenges since humans and materialities are often reproduced as distinct and pre-existing their relationships with each other (Bodén et al., 2019). This slippery process of acknowledging material–human relations in analysis of teaching has also been one of the main challenges in the work with this thesis. Here, I make use of Hasse’s (2020) approach to learning as a material and collective process where humans learn from other humans as well as their shared material context. This process makes humans entangled with—not separate from—the material world. Learning is further a process that connects concepts, material words and material things. Accordingly, abstract concepts become meaningful to human collectives through things and stories. Concepts are therefore seen as ‘the time-binding glue’ that connects discourses and materiality (Hasse, 2020, p. 136). This, for example, became apparent in study I, concerning student conversations about virginity. Here, ‘virginity’ comes into being as a material concept formation when students, for example, connected it to the materiality of the vagina as well as the spatialities and temporalities where it is re-produced.

Not only matter but also time and space are viewed as agential in their mutual entanglement. They are integral aspects of phenomena, which is further acknowledged by using the word spacetime-matter (Barad, 2007). Haraway (2016, p. 2) has further used the word *Chthulucene* to enact a timeplace for ongoingness of ‘all sorts of temporalities and materialities’ (in contrast to the human-centred world of Anthropocene). With regard to learning, temporality comes into being as a past-present-future relationship that is not linear. Accordingly, what has previously been learnt entangles with new contexts as predictable and unpredictable spaces connects (Plauborg, 2018). In an agential realist understanding, this means that ‘learning can “leap”

across time and space in a multidimensional understanding thereof (Plauborg, 2018, p. 334). Hasse (2020) has further called this situated material and relational process which intra-acts with time and space ‘preceding learning’. This further means that ‘what we *have* learned matters for what we *can* learn in new situations’ (Hasse, 2020, p. 6, italics in original). To conclude this section on theoretical engagements, learning can be regarded as an effect of spacetime-matter intra-activity (Plauborg, 2018). However, as the process of learning is enacted when learners intra-act with the world’s situated material and social contexts, preceding learning will never come into being in exactly the same way (Hasse, 2020).

In sum, Haraway’s and Barad’s onto-epistemological positions not only offer new ways to think further about learning, but also ways of doing research (Ringrose et al., 2021). The next chapter outlines how the research process came into being.

4. Data engagements

This thesis is situated within the field of qualitative research and engages in ways of producing research that are compatible with the ontological turn outlined in the previous chapter (MacLure, 2017; St. Pierre, 2018, 2021a). This means that data analysis was inspired by post qualitative inquiry (St. Pierre, 2011), which aims at making research less human-centred and favours methodological experimentation over the critique of various practices (MacLure, 2017; St. Pierre, 2021a; Taguchi & St. Pierre, 2017). Gunnarsson and Bodén (2021) have further suggested that the ‘post’ prefix does not mean a distancing from qualitative approaches but rather simultaneously problematising and adding alternatives to and possibilities for conducting research. This call for experimentation has further been acknowledged in sexuality education research. Allen (2018, p. 4) concluded that critique in this field had stagnated and suggested the approach offered by, for example, Barad (2007) ‘to reconsider sexuality education at an ontological and epistemological level’. Through investigations on the becoming of Swedish sexuality education, this thesis aims to contribute to this call. Consequently, I first outline how post qualitative inquiry can come into being, and then describe it from the perspectives of the four studies in this thesis.

Since the onto-epistemological premise put to work here is concerned with the blurring of binary logics, but also challenges the idea of representationalism (Jackson & Mazzei, 2022; Lather & St. Pierre, 2013; St. Pierre, 2021a), it has questioned the use of pre-determined procedures in planning, production and analysis of data (MacLure, 2013b; St. Pierre, 2011, 2017, 2018, 2021a). This questioning is, *inter alia*, a critique of data reduction practices and researchers distancing themselves from data (Davies, 2014; MacLure, 2010; Mazzei, 2014). Post qualitative inquiry is rather about offering possibilities for spreading ‘thought in unpredictable patterns producing different knowledge’ (Mazzei, 2014, p. 742). Since the world is not viewed as stable but rather entangled, relational and produced in intra-activity it

cannot be separated and disconnected from the researcher and the research context (Davies, 2014; Jackson & Mazzei, 2022; Lather & St. Pierre, 2013; St. Pierre, 2011). Post qualitative investigations are therefore not about representing the world, but about providing other possible ways of thinking, living and knowing (Lenz Taguchi et al., 2020; St. Pierre, 2021a, 2021b). Accordingly, there is a need for methodological sensibility (Bodén et al., 2019) and multiplicity (Lenz Taguchi et al., 2020).

How can this kind of research come into being then? St. Pierre (2011, 2017, 2018, 2021a, 2021b) suggests that post qualitative inquiry starts with the reading of theory, to get acquainted with related concepts and to write, as part of analysis. This process can be described as being ‘in a space of emergent, fragmented strategies that mutate according to the task at hand’ (Jackson, 2017, p. 667), where thinking is kept on the move (Jackson & Mazzei, 2022). Conducting research in this way, we are ‘thinking with theory’ (Jackson & Mazzei, 2012, 2022; Mazzei, 2014). Since data, data production, and data analysis are viewed as inseparable (St. Pierre, 2011, 2018), this approach can also be regarded as ‘reading-the-data-while-thinking-the-theory’ (Mazzei, 2014, p. 743). The process has elsewhere been called diffractive analysis (Davies, 2014; Lenz Taguchi, 2012; Mazzei, 2014), although that particular wording is not used in this thesis. Since theoretical concepts have the potential to reorient thinking, they also become actors in the analysis (Bodén et al., 2019), but how they might be put to work in analysis cannot be predicted (Colebrook, 2017; Taguchi & St. Pierre, 2017). Bodén and Gunnarsson (2021) have further emphasised how this process works two ways. While the educational phenomenon to be investigated steers what theoretical concepts might be useful in analysis, the theoretical approach also transforms what is to be investigated and what knowledge is produced. How this came into being will be outlined in the next section.

Wonders in Swedish sexuality education

The phenomena to be investigated came into being in a way that MacLure (2013b) has called an awakening of ‘wonders’ (research interests). Wonders are fascinations in the data that puzzle us and push us to think further. This way of thinking proposes that data invite and make themselves intelligible to the researcher, and that it is the researcher’s task to see where this leads (MacLure, 2013a). Wonders are

also material—dwelling in body and mind—as they can be felt in the gut, increase heart rate or cause disgust (MacLure, 2013b). This was what two of the investigated phenomena—education about virginity and pornography (studies I and III)—to various extents, did to me. Studies I and III awakened both my curiosity to keep on going and uncertainty about the kind of research that would come out of the analysis, which made me question my investigations several times.

Inquiry also often begins before the actual research project takes place (St. Pierre, 2018)—the phenomena I investigated in the studies having puzzled me since I was a practicing teacher. MacLure (2013b) has further turned to Baradian (e.g., 2007) theory to emphasise the relationality in wonders. This means that wonders can be seen as entanglements or intra-actions connecting humans and nonhumans, since data and the researcher do not pre-exist. In the next section I outline how this ‘entangled relation of data-and-researcher’ (MacLure, 2013b, p. 228) was central to data production.

Production and analysis of data in lower and upper secondary school settings

The data for this thesis were produced in collaboration with four schools. This means that the educational phenomena investigated were not only linked with my experiences and interests, but also came into being in collaboration with the participating schools (see Gunnarsson & Bodén, 2021). Since engagements were first initiated in an upper secondary school setting, followed by lower secondary school investigations, the outlining of how the research processes were enacted follows that order.

Upper secondary school engagements

The two upper secondary school engagements shared several similarities. The 17–18-years-old students were in Grade 11 (*årskurs 2*) and participated as part of Science Studies, an obligatory school subject for most students not specialising in the natural sciences (Swedish National Agency for Education, 2012b).

At the first upper secondary school, I engaged a science teacher that I had met at in-service trainings and seminars on the teaching of newly arrived students. My query was about whether I could join an upper secondary science class rather than a language introductory class (see

chapter 5 for further thoughts on this matter). A first meeting resulted in me being invited to participate in the teaching of 18 lessons in an eight-week sexuality education unit. The class to be engaged attended the social science programme (*samhällsvetenskapligt program*). Here, 30 students agreed to participate in the research, and two declined. The teaching was planned and evaluated on a weekly basis by the science teacher and I, although the teacher was responsible for teaching. Data came into being via 20 hours of participatory observations in class documented with written notes. These notes were then captured in a chart with two columns (teacher–students) following how the teacher and students intra-acted. The neatly written notes consisted of 32 pages, and as all the transcript documents, in Times New Roman 12 font, line spacing 1.0.

The second upper secondary school engagement involved a science teacher that I had also met at work-related events. Here, sexuality education consisted of 12 lessons distributed over six weeks, and planned, conducted and evaluated by the teacher. In this school, 23 students attending the humanities programme (*humanistiskt program*) agreed to participate, and two declined. Most of the time in class was devoted to an individual student assignment. The students explored natural science and social aspects of a norm of their choice related to sex and sexuality. Since the teaching focus was on students' work with individual assignments, audio-recordings became central, leading to approximately 13 hours of recorded material and 117,5 pages of transcript. Written notes were only taken occasionally and were not used in analysis.

As a practitioner, I was more interested in student participation than scrutinising teachers' work. In a first data engagement, transcripts from classroom 2 were sorted on the basis of their content. This came into being as a physical activity where transcripts were printed, read through several times, cut into sections with regard to the topic of conversation and grouped on the floor of my office (at home and at work). One of the paper piles came to materialise student conversations on virginity. Since I had had previous teaching experience in this matter, this particular pile made me wonder where further inquiry might lead. Accordingly, student conversations on the same topic from the first classroom were added. When transferred into a separate Word document, 8,5 pages materialised the educational phenomenon virginity (Study I).

Yet another physical paper pile interested me more than the others—student discussions on contraceptive methods. Here, students from the second classroom showed an interest in a mobile phone contraceptive application. Although I knew the application existed and had even tried it myself, this was something that I had never come across in teaching. So, what could an in-depth analysis contribute to the field of research and teaching of contraceptive methods (Study II)? When inserted into a separate Word document, the second pile of paper became 25 pages. Since teaching about contraceptive methods took the form of a lecture in the first classroom, and no discussions



A mobile phone contraceptive application awakened curiosity.

occurred, these notes were not included in analysis.

Below, I first describe the data production process in lower secondary schools, before explaining how analyses of education about virginity and contraceptive methods continued through thinking with Baradian and Harawayan theories.

Lower secondary school engagements

In 2019, I became part of a research group with a joint interest in sexuality education and in spring 2020, the group received financing from the Swedish Research Council [2019-03962]. This broadened the doctoral project to also include lower secondary school level and to be interdisciplinary. The overall research project includes a pilot study and studies in schools A, B, C and D. However, this section only focuses on the study settings involved in this thesis, schools A and D.

School A was contacted via an email sent to several schools and school D got involved via the research group's wider network. After the schools showed interest in participation, their involvement largely followed the same pattern—a first meeting with interested teachers and the principal—in which further engagement was discussed. To participate, the school needed to involve teachers from several school subjects, make time for at least six collaborative teacher–researcher meetings, and provide opportunities for participatory observations in class. The content of teacher–researcher meetings was further based on the situatedness and need of the specific school and altered as the project proceeded. All research engagements were audio-recorded and

documented with written notes. Here, wonders about what to investigate were decided during the ongoing research process and not after data production had been completed. This means that only data concerning these wonders were transcribed and analysed further.

In school A, eight teachers involved in the teaching of Grade 8 got engaged in the project. The initial collaboration came to concern the inclusion of pornography education into the school's forthcoming and annual sexuality education unit, a thematic week (Study III). Five of the teachers, specialised in Civics and Arts, English and Physical Education, Science, Music, and Science and Maths, participated in the planning of the specific lesson on pornography. Data on this matter came into being during four one-and-a-half-hour teacher–researcher meetings and participatory observations during a 90-minute lesson. In addition, data were produced during two evaluation meetings with the teachers, after the completion of the sexuality education week and at the end of the school year. Data also include interviews with the 25 14–15-year-old students participating in the lesson (see Appendix for interview guide). Since data production took place within wider discussions on sexuality education, the exact length of audio-recordings on education about pornography has been hard to estimate. Notes became helpful for tracing audio-recordings on the topic, but were also a complement, for example, by documenting what was shown on the board in class. All engagements with pornography education materialised in 53,5 pages of transcript.

In school D, the Grade 9 teacher team were engaged in the project. This team consisted of 13 teachers specialised in, for example, Crafts, Spanish, German, English, Religion, History, Physical Education, Civics, and Natural Science. Here, sexuality education did not take the form of a thematic week but was enacted within each school subject. Research collaboration included several teacher–researcher meetings with the whole group. Since the meetings varied in length from two-hours-long to two full days, they also offered time for subject-specific discussions. In the group of four science teachers, discussions came to concern constructing natural science sexuality education by including students and challenging mere preventive and heteronormative approaches. Since this query had also been present throughout the doctoral project, it became the final phenomenon of investigation in the thesis (Study IV). Data came into being in discussions between the science teachers during three of the teacher–researcher meetings but also in a 75-minute meeting with the science teacher responsible for the teaching and in two one-hour lessons on natural science sexuality

education. Here, 33 15–16-year-old students in two classes participated in the research. Only the parts of teacher–researcher meetings and lessons concerning natural science sexuality education were transcribed so it was therefore hard to estimate time. Data became materialised in 39,5 pages of transcript.

In lower secondary school, interest in what to investigate was awakened during ongoing research collaborations. Transcripts and notes on these matters were inserted into the MAXQDA 2020 data software programme. Whereas the upper secondary analysis had been a physical activity with the data, the engagement with the lower secondary data was now digital. My experience with the physical engagement with the data from upper secondary schools alerted me to some limitations of this method, wherefore I chose a digital engagement with data from lower secondary schools. Digital analysis, for example, made it possible to sort data in multiple ways rather than one paper pile at a time. The shift also came into being as a smoother way to repeatedly access data than shuffling around with piles of paper in envelopes. This time, sorting was also based on the content of teaching and discussions, but the search for patterns was within natural science sexuality and pornography education.

In the next section I describe how this process came into being while ‘thinking with theory’ (Jackson & Mazzei, 2012, 2022; Mazzei, 2014).

Thinking with theory in analysis of data

Educational phenomena investigated in this thesis—the teaching of virginity, contraceptive methods, pornography and natural science sexuality education—were analysed with the guidance of theoretical concepts (see, for example, Colebrook, 2017; Taguchi & St. Pierre, 2017). These concepts came into being via the reading of Baradian (2000, 2007, 2011, 2014) and Harawayan (1991, 2016) theorising. ‘Reading-the-data-while-thinking-the-theory’ (Mazzei, 2014, p. 743) further worked on two levels of analysis. This means that the analytical concepts were sometimes applied to the whole data set, and sometimes in relation to excerpts chosen for in-depth analysis. This section further outlines this process.

Baradian entrances to analyses

In the reading of Karen Barad (2007), a shift from a representationalist understanding towards viewing the world as phenomenal, affected the analysis in the first study. Since it is stressed that phenomena are come into being through spacetime-matter intra-actions, this view was further used in investigations of student conversations on *oskuld*. This, in turn, made virginity come into being as a phenomenon that, while it does not scientifically exist, has been materialised over time in most societies. More specifically, this means that ‘phenomena/phenomenon’ was put to work as a more overarching analytical concept, while spacetime-matter was used in the analysis of specific excerpts. The choice of excerpts for in-depth analysis was further based on a sorting of data into questions to which the student conversations and actions responded. They were: *when, where and why does virginity become important, whose virginity becomes important, and can virginity be experienced bodily?* Each question is in analysis exemplified by an excerpt.

In the fourth study, I returned to Baradian (2007) theorising. Here, spacetime-matter was used as an analytical concept to investigate how time and space travels and material activities within the classroom can expand medical, heteronormative, and sex-negative premises in natural science sexuality education. Since sorting of data in this study mostly confirmed the way in which natural science sexuality education often comes into being (mentioned above), spacetime-matter was used as a concept for in-depth analysis in some of the excerpts that challenged this stance.

Harawayan entrances to analyses

Donna Haraway’s (1991, 2016) cyborg image became a creative creature to think with in the second study, education about contraceptive methods. In the sorting of data, three main stories on contraceptive methods materialised. These were an interest in hormonal and mobile phone contraception and contraceptive responsibility. In thinking with theory, these stories came into being as four gendered contraceptive cyborgs which were exemplified by in-depth analysis of student excerpts. Haraway’s (2016) later work on tentacular thinking further turned the contraceptive cyborg(s) into a tentacular creature(s), connecting student discussions to broader historical, cultural, political, market-oriented and natural science associations with contraceptive methods. This meant that the cyborg image became the overarching

analytical concept with regard to data, while the cyborg tentacles materialised each cyborg's broader associations.

Tentacular thinking is a form of string figuring (Haraway, 2016) and this awakened further curiosity about thinking with Harawayan concepts in study III. Since string figuring (SF) is a collective process and research had moved into collaboration with a teacher team, this engagement seemed possible. The sorting of data in the third study materialised a four-threaded string figure on education about pornography. Each thread further came into being via in-depth analysis of specific excerpts. Here, the analytical concepts 'materialising' and 'troubles' were put to work. SF's speculative character also enabled speculations on possible ways forward for the teaching of a yet somewhat underexplored topic in Swedish schools.

Post qualitative inquiry into becoming

As stated in the introduction of this chapter, this thesis has favoured methodological exploration over the critique of sexuality education practices (Allen, 2018). However, engagement with post qualitative inquiry has not been a work without struggles (Davies, 2014; MacLure, 2013b; Mazzei, 2014; St. Pierre, 2021). MacLure (2017, 2021) has, for example, problematised the fact that much onto-epistemological thinking still comes into being as representations and that it is challenging to construct research practices which take nonhuman relations and immanent participation into account. In this regard, most data for this thesis were jointly constructed with the participating teachers on site (except in the second upper secondary school) and with students during ongoing lessons. In-class engagement consisted of participatory observations where the researcher(s) alternated between participation and documentation. Consequently, research practice was not enacted from a distant position (Gunnarsson & Bodén, 2021). Interviews with students further came into being through semi-structured focus group interviews. Since the interviews were based on intra-activity between students and the researcher, they can be viewed as a more relational way of producing data (Bryman, 2011; Gunnarsson & Bodén, 2021). Written notes and a recording machine were also part of the construction of data, which is discussed in the next chapter. In all four studies, material arrangements intra-acting with humans in teaching have also been acknowledged. These materialities were, for

example, films, books, curricula, tampons, contraceptives, and cases and questions displayed on the board in front of the class.

However, since data in all four studies were sorted based on the content of conversations and teaching, this might be viewed as a form of categorisation and data reduction (Davies, 2014; MacLure, 2010; Mazzei, 2014). Sorting was nevertheless helpful for seeing patterns in discussions and teaching. To further engage in the critique of analytical methods such as thematisations and categorisations, in-depth analysis of specific excerpts became central.

The quality of qualitative research

Since this thesis is positioned within the field of qualitative research, this chapter will end in a discussion on how the quality of research can be evaluated. Although there are multiple approaches to the field, there is also common ground. It is, for example, concerned with contextual understandings and summaries of the world, and tries to explain social phenomena. This often comes into being through analyses of observations or recordings of practices, individual or group experiences, and documents. The researcher is also acknowledged to be part of this process (Flick, 2018), and the philosophical position adopted is considered to affect the kind of research that comes into being, the questions that might be asked, and the most appropriate methods to use (Coe, 2012). However, this multiplicity has raised questions about whether universal criteria such as validity, reliability and generalisability are appropriate for evaluating the quality of qualitative studies (Bryman, 2011; Coe, 2012; Flick, 2018; Tracy, 2010; Walby & Luscombe, 2017). Accordingly, I have here made use of Tracy's (2010) eight key markers to evaluate my work. Although the proposed universality of these criteria has been questioned (Gordon & Patterson, 2013), they are flexible enough to be adjusted to the goals of the research project, to the theoretical stance, and to the context. There is furthermore a distinction between the end goals of qualitative research and the mean methods of achieving these goals. The eight criteria are: *worthy topic, rich rigour, sincerity, credibility, resonance, significant contribution, meaningful coherence, and ethics* (Tracy, 2010). The key markers also at times overlap and should not be viewed as distinct from one another (Walby & Luscombe, 2017). As each criterion is

comprehensively described, I will not address all its meanings, but rather introduce the key marker briefly before relating it to my own work.

The criterion *worthy topic* engages with whether the research is considered to be relevant, timely and interesting (Tracy, 2010). With regard to this criterion, I recall what was outlined in the first and second chapters. Here, the need for more practiced-based studies and student involvement in teaching was stressed. Challenges with the teaching of controversial topics such as virginity, contraception, and pornography were also outlined. All four studies engage with the inclusion of student perspectives in teaching and three concern topics characterised as controversial. Sexuality education is also highly topical with regard to Swedish school policy. Hence, although some of these topics originated from my own wonders as a practitioner, they have also been shown to be of interest in the wider Swedish educational context.

It is suggested that qualitative research be evaluated in terms of *rich rigour*, which, inter alia, concerns how theory is used and how data are produced and analysed. To achieve rich rigour, the means of data production, analysis and explanation should be as complex as the phenomenon under scrutiny (Walby & Luscombe, 2017). Rich rigour also includes questions about whether the volume of data can be considered sufficient for making research claims (Tracy, 2010). This chapter has therefore been devoted to outlining how data were produced and sorted, how topics for investigation were chosen, and how the analyses came into being. Since post qualitative inquiry views the analysis of data as closely intertwined with theory, the analytical processes have been specifically constructed for the investigations at hand (Jackson, 2017). This means that since my theoretical engagements influenced the research outcomes, phenomena of investigation might have come into being differently and might have produced different results if other theories had been used. The studies have further not engaged with simplified answers to the complex phenomena studied, but rather with showing the complexities that come with the teaching of sexuality education. Although the data set for Study I could be considered small (8,5 pages of transcripts and notes) I hope the topic's relevance makes it a valuable contribution to the field of research and practice.

Sincerity is to be achieved through honesty and transparency about the researcher's goals, biases, and struggles and credit to various authors is appropriately reflected in the author order of a publication (Tracy, 2010). In the first part of the thesis, I have been clear on the

wonders that followed me from my previous teacher practice into research and how these affected the production of the studies. To me it has also been important to not engage in research that is critical of the work of the participating teachers and students who kindly invited me and my colleagues to take part in the teaching. The research has focused rather on showing how sexuality education can be enacted and making suggestions for teaching. Struggles in research practice, for example, with post qualitative inquiry and the neutral naming of participants and influencers (discussed in the next chapter) have also been discussed. As regards the author order of the studies, while my supervisors provided valuable feedback, the data analysis and text production is all my own work. Since the studies would not have come into being without their engagement, their contribution is acknowledged through co-authorship.

Credibility concerns the trustworthiness and plausibility of the research. Here, thick descriptions, empirical examples and the use of multiple data sources are considered to be important for contextualising results. Multivocality, i.e., multiple and varied voices, are further suggested as a means of bringing different opinions to the fore in analyses (Tracy, 2010). During the writing process, there has at times arisen a tension between providing thick descriptions of the study setting and data production and the limited word count for papers in scientific journals. Although most analyses focus on transcribed audio recordings and/or notes (studies I–VI), interviews have also been used (Study III). Empirical examples and several student and/or teacher voices also form the basis of all four studies.

Resonance refers to how the research affects the field and is discussed in terms of aesthetic merit and transferability. Aesthetic merit concerns the way texts are written and transferability to the study's potential for being transferred to other contexts (Tracy, 2010). In the studies, the onto-epistemological starting points inspired the writing and might come into being as aesthetic, explorative and appealing to the reader. Although the studies were produced in a Swedish context, the topics of investigation concern sexuality education internationally and might therefore be transferable to other situations and contexts.

Significant contribution concerns the studies' theoretical, practical and methodological contributions (Tracy, 2010). My work with this thesis has, among other things, also aimed to contribute to how “thinking with theory” (Jackson & Mazzei, 2012, 2022; Mazzei, 2014) can be enacted in sexuality education research. The interest in exemplifying post qualitative inquiry was further based on my own struggles to

understand how this approach might come into being and I have accordingly outlined how Baradian and Harawayan theorising came to influence the investigations and knowledge production (Bodén & Gunnarsson, 2021). It is further proposed that the studies' practice-based premise gives them practical significance.

The final key marker, *meaningful coherence*, refers to how coherent a study is. This includes how well it meets its stated aims, has engaged with what it was meant to be about, and whether it uses theories and methods appropriate to what was investigated. Coherence also includes the extent to which a study is grounded in literature (Tracy, 2010; Walby & Luscombe, 2017). In line with the overarching aims of the research, the four studies have engaged with the becomings of secondary sexuality education. The onto-epistemological framing, used by many scholars in the field of sexuality education research, has further contributed to sexuality education coming into being as a relational, material, and entangled practice. How this could be of use in teaching and learning of the knowledge area is discussed in chapter seven. Each study has further engaged with literature related to the topic of investigation, while the first and second chapters include overviews of Swedish and international sexuality education research.

Ethical concerns awakened during data engagements will be discussed in depth in the next chapter.

5. Ethical engagements

Within the theoretical framework, ontology, epistemology, and ethics are viewed as inseparable. Since the onto-epistemological point of departure has previously been outlined, this chapter is concerned with ethical engagements. These are first described in relation to the field of education, and then the more practical concerns.

Ethics as a relational and material practice

The fostering of citizens has been described by Michel Foucault (1980, 2008, 2010) in terms of ‘biopower’ or ‘biopolitics’ and by Donna Haraway (1991) as ‘techno-biopolitics’. In short, these concepts capture how, for example, schooling aims to mould individual and societal transformation around school policy positions. In this thesis, this fostering of individuals, for example, came into being through education on contraceptive methods (studies II and IV) and through education about pornography (Study III). However, this transformative potential of education also contains a paradox, which is how to transform students without, at the same time, imposing values (Allen, 2021b). In response to this paradox, it has been suggested that teaching should acknowledge and nurture different ways of becoming, where the cultivation of multiplicity can be seen as an act of resistance to biopower. This is made possible when different cultures, creations, ideas and desires are shared in school (Bazzul, 2023). Teachers are suggested to listen, stay in the present and to be attentive to how the teaching unfolds (Allen, 2021b). Renold (2018) have further provided several examples of how attentiveness and material engagements can lead to unexpected emergences in discussions on sexual violence among teenage girls.

Within this onto-epistemological approach, ethics comes into being as relational and through material practices, including both humans and nonhumans (Bazzul, 2023; Scantlebury & Milne, 2020; Taylor, 2018). This means that since ethics involves more-than-human en-

gagements (Bazzul, 2023), considerations on the influence of materialities in research and education are needed (Milne, 2019; Nordstrom, 2015; Scantlebury & Milne, 2020). This is because encountering with materialities can contribute to the troubling of dichotomies and therefore have the potential to produce different teaching outcomes (Scantlebury & Milne, 2020; Taylor, 2018). The troubling of binaries, for example, came into being when, in the second study, a mobile phone contraceptive application blurred the boundaries of what can be considered human–nonhuman. In the studies, notes and recording devices further become tools for boundary-making (Nordstrom, 2015; Scantlebury & Milne, 2020). In this thesis, audio-recordings also enacted limitations with regard to the material world. In retrospect, it became challenging to acknowledge human–material relations if they were not noted orally or had not been documented in notes. Barad (2007) has described this boundary-making practice as the making of agential cuts. When ‘cuts’ produce temporary boundaries of phenomena, exclusions are enacted when certain realities (and not others) are brought to the fore (Hollin et al., 2017).

It has been suggested that the construction of a more-than-human relational ethics (Bazzul, 2023; Bozalek et al., 2018; Scantlebury & Milne, 2020; Taylor, 2018) has the potential to contribute to more accountable and responsible educational practices (Taylor, 2018). In the four studies of this thesis, ethics is explored via the terms ‘accountability’ and ‘response-ability’. Since ethics emerge from how entanglements are ‘cut’ (Bazzul, 2023), Baradian ethics emphasise accountability for human entanglements with the world (Kayumova & Bazzul, 2019). Haraway has further described ethics as response-ability for who and what comes to matter in meetings between nonhumans and humans (Taylor, 2018). Responsibility and accountability are thereby equated, and Barad and Haraway regard them as interchangeable (Bozalek et al., 2018). Since matterings are relational in time and space, accountability and response-ability also extend into the past and future (Kayumova & Bazzul, 2019; Taylor, 2018).

Although Barad and Haraway state that ethics comes into being through practices and processes rather than rule-based principles (Bozalek et al., 2018), this thesis is produced within the Swedish research community, which means that it also had to conform to the codes, procedures and frameworks regulating ethical conduct. Next, I describe how ethical engagements came into being in work with this thesis.

Ethics in practice

As mentioned in the first chapter, I entered research with experiences from teaching both natural science and introductory language programmes. This led to discussions on whether the doctoral project would focus on newly arrived students, a major area of interest in Swedish educational research at the time (see, for example, Nilsson Folke, 2017; Sharif, 2017; Svensson Källberg, 2018). However, since research and my own experience have shown that sexuality education aimed at newly arrived students often comes into being as fostering ‘Swedishness’ (Bengtsson & Bolander, 2020; Bolander & Bredström, 2021; Bredström et al., 2018), and is not about nurturing different ways of becoming, I decided to frame this thesis more broadly. Accordingly, the research focus is rather on the becoming of Swedish sexuality education and, for ethical reasons, not construction of sexuality education for particular groups of students.

Becomings of ethical vetting(s)

The decision to apply for ethical vetting(s) was guided by Good research practice (Swedish Research Council, 2017), a national code of conduct for social science research and General Data Protection Regulations, GDPR (EU 2016/679, 2016). According to GDPR, data on racial or ethnic origin, religious or philosophical beliefs, health, and a person’s sex life or sexual orientation are considered to be particularly sensitive. As data could possibly include such information ethical vetting was needed. The first ethical application was sent to the regional Ethical Review Board in Stockholm in spring 2018 (Dnr 2018/389-31/5) and concerned the doctoral project’s initial focus on upper secondary natural science sexuality education. In spring 2020, the project ‘Enacting Sex Education: A practice-based study concerning interdisciplinary knowledge content in Swedish secondary school’ underwent ethical vetting by the Swedish Ethical Review Authority (Dnr 2020-00823). The permissions made investigations in lower and upper secondary school settings possible. Thereafter, ethical considerations continued to be an ongoing part of the doctoral project, as will be outlined in the following sections.

Negotiations of informed consent

Although practical conditions for participation varied between the four schools there was also common ground with regard to ethical concerns. Initially, the principals were asked for permission to conduct studies at their schools and since research participation needs to be voluntary (Swedish Research Council, 2017), teachers and students got to decide for themselves. To avoid undue influence and to circumvent teacher–student dependency (Andrée et al., 2020; Malone, 2003), I alone made preparatory visits to the upper secondary school classes and the research team to the lower secondary school classes. Traceability issues were also reasons for not situating the studies in my own or colleagues' classes, although I was a practicing teacher at the time (Andrée et al., 2020; Malone, 2003). During these visits, students were orally informed about the project's purposes, what involvement meant and the possibility of withdrawing their participation at any time. Classroom visits also provided opportunities for questioning. Consent forms with the same information were handed out, signed if agreed upon and then collected. The same procedure was also offered to teachers at the beginning of the collaboration. However, where lower secondary students were under the age of 15, both students and their legal guardians needed to agree on participation.

Even though informed consent is a given part of standardised research practice, it has also been problematised (Flewitt, 2005; Malone, 2003; Renold et al., 2008; Robson, 2011). Flewitt (2005) has, for example, suggested that it be replaced by a provisional consent where approval is constantly negotiated and revisited during the study. Participants then have the opportunity to become more active in the research process and to experience a sense of ownership (Robson, 2011). The idea of consent as 'always-in-process and unfinished' (Renold et al., 2008, p. 427) has, to some extent, influenced my own research practice. For example, I gently asked for permission when a dictation machine was placed amongst the students or when I was about to sit down to take written notes. With regard to ownership and active participation, the students were also able to decide the extent to which they were engaged in discussions and to shape the outcome of their conversations.

To further meet the requirement that all students, regardless of whether they agreed to participate, were accorded equal learning opportunities (Andrée et al., 2020), teaching involved all the students in class. They were, however, grouped based on research participation and only the voices of those who had agreed to participate were audio-

recorded and documented in notes. School A provided a slightly different premise for the research. Since the school had a tradition of mixing students between classes during sexuality education, the 25 students who had agreed to participate were placed in a separate group that the researchers followed. Both groups were, however, taught the same content by the same group of teachers.

Work with the four studies did not only include concerns about how to organise classroom involvement prior to research engagement, but also how to tune into the specificity of the various schools.

Becoming part of the school world

Since the studies took place in lower and upper secondary schools, ethical challenges also included becoming part of each school's world. Although the other researchers and I were trained teachers acquainted with context, culture and language in the field of education (Adriansen & Madsen, 2009, 2014), there was still a need to tune into the specificity of each schools. The longer the collaborations progressed, the more teacher–researcher relationships developed into an understanding of each other's context and work (Andrée et al., 2020). However, understandings were also challenged. Different views on teaching within the teacher group and between teachers and researchers, for example, became evident in lower secondary school with regard to discussions about pornography education. When this occurred, the teachers responsible for planning and implementation had the final say. This was due to the fact that even though my researcher colleagues and I were involved in planning, the teachers were ultimately responsible for implementation of the sexuality education and accountable to students and legal guardians. Though sexuality education is most often not considered controversial and provocative in Sweden, dilemmas regarding content were awakened when the schools decided to engage in education about virginity (Study I) and pornography (Study III)—topics for which the teachers could have been held accountable to legal guardians. If these ethical challenges were materialised, lower secondary teacher teams were able to depend on each other, whereas the upper secondary teachers were alone in navigating the teaching and its possible consequences.

Yet another concern when engaging in in-situ studies is teachers' responsibility for assessing and grading student work, while researchers have no such obligation (Andrée et al., 2020; Ollis et al., 2019). In this thesis, while upper secondary student work was assessed at the

end of the educational episode, the assessment was not included in data. Lower secondary school sexuality education, as far as I know, was not assessed. Here, participation in research was rather regarded as a joint opportunity for exploration and development. Ollis et al. (2019) have further questioned the ethics of processes where researchers are simultaneously part of the construction, and criticising teachers' work. Since teachers in several schools kindly invited my researcher colleagues and me into their classrooms, questions on how to frame the analysis were awakened. This thesis should thereby not be viewed as a critical analysis of sexuality education, but rather as an exploration of ways to construct and think about sexuality education (Allen, 2018; Cense et al., 2020; Koepsel, 2016; Krebbekx, 2019; Ollis et al., 2019). This stance is also grounded in my own experiences from being a practitioner—I am well aware of the challenges that come with teaching sexuality education.

As described in this section, procedural and relational ethical considerations were consistently part of the production of this thesis, but the work also stumbled upon a rather unexpected ethical dilemma in study II. A mobile phone contraceptive application, the influencer who co-owned the product and several influencers' who used and promoted the product were named, which then challenged the ethics of digital media engagements, such as, how should personal information about contraceptive use which is shared in influencer blogs be viewed in a research context? Did we need to ask those involved for permission to include the second-hand data in our study? Was an additional application to the Ethical Review Authority required? Discussions with staff members at the Office for Research, Engagement and Innovation Services at Stockholm University (who assisted with the research ethics) and my own engagement with digital media ethnography (franzke et al., 2020), resulted in a decision to anonymise the involved actors. After all, naming had no real purpose for the results of the second study and was therefore not essential to the project. The following section also deals with the anonymisation of data, albeit from a different perspective.

Ethical struggles in research practice

The final ethical concern to be discussed is connected to the norm-critical pedagogy, introduced in chapter 2 and which has gained support within the Swedish educational system (Björkman et al., 2021).

This approach was further strengthened by the participating teachers, who, during the production of the studies, practised norm awareness and used gender-neutral pronouns in teaching. Only the first upper secondary school provided a slightly different approach to norm awareness. Here, while norms were explicitly discussed, gender-neutral words were not used in class. Årman (2021), Bengtsson and Bolander (2020) refer to the use of gender-neutral pronouns in teaching as an act of language activism, a tool to achieve inclusion and social transformation. The stance is often practised by students and teachers with an interest in queer, feminist and anti-racist issues and can thereby not be viewed as generic in Swedish schools (see Study II)—although this thesis might seem to suggest so.

Besides my experiences from teaching in a similar school context influencing my research practice, these perspectives were further strengthened when the upper secondary teachers requested information on students' gender and ethnicity respectively to be omitted from my analysis (see studies I and II). Since this approach underpinned my stance on research participation, it was most seriously considered and furthermore intra-acted with the fact that students throughout the doctoral project were not asked to provide personal information. Since the research focus was rather on the becoming of sexuality education, it did not seem important to ask for such information at the time. This, in turn, made it hard to suppose, for example, students' gender, although this could, at times, have been figured out from students' external attributes or the pronouns they used when addressing each other. It later became difficult to reassess the decision.

For my research practice, this meant that all students were neutrally named 'S' and the teachers 'T', or according to their subject-specific expertise. Although the neutral naming came into being as a way to relate to the norm-critical pedagogy framing this thesis, it could also be criticised for contributing to the blinding of not only gender but also ethnicity. Cultural or gendered differences in views on sex and sexuality are, for example, not foregrounded in the analyses in the studies. Possible power relations between girls and boys or others, occurring during discussions, were not problematised either. This, in turn, means that structural patterns may have been overlooked in analysis. The neutral naming can further be seen as contributing to the interests of confidentiality. Besides anonymised names in notes and transcriptions of audio recordings, I have provided limited temporal and spatial information about the schools participating in the studies. This because sexuality education research is a delicate practice.

6. Summary of studies I–IV

In this chapter, I summarise the four studies on Swedish sexuality education. To frame the studies, I first reiterate the overarching aims of this thesis. Previous scholarly results have stressed that Swedish sexuality education should be more affirmative, include students in the teaching and engage with topics that cover more than mere medical and biological knowledge. Thus, it follows that more classroom-based studies are needed. The main aim of this thesis has been to investigate the becomings of lower and upper secondary sexuality education with a practice-based approach. A second aim has been to explore how the onto-epistemological framing could contribute to new understandings of what sexuality education could be and to make proposals for the teaching and learning of the knowledge area.

There were several reasons for the practice-based point of departure of this thesis. My own experiences from teaching awakened a wonder in investigating how sexuality education could come into being, rather than producing critical studies, which are common in the field of research (Allen & Rasmussen, 2017). And there is also a need for more classroom-based studies (Ketting & Ivanova, 2018). In this thesis, three studies (I, II and IV) concern secondary natural science sexuality education. In these studies, the teaching of genital anatomy, contraceptive methods, desire, sexual practices, and reproduction are examined and linked to a broader societal context. Study III falls slightly outside the natural science scope in this thesis. Education about pornography is a phenomenon recently made explicit in the Swedish curriculum (Swedish National Agency for Education, 2022), which therefore called for scholarly attention.

Study I: Oskuld: Swedish upper secondary student conversations on virginity

The becoming of this study was entangled with earlier experiences of being a practitioner. This knowledge was further developed as the participating students engaged in the anatomy of the vagina and the myth of the hymen and as reading provided theoretical concepts to deepen the analysis. Accordingly, the aim of the study became to explore Swedish natural science sexuality education as a material-discursive practice, with a focus on the various notions of *oskuld* as spacetime-matter relations in two upper secondary classrooms. The questions guiding the study were: *How is the phenomenon of virginity enacted in student conversations and how might this affect the teaching of sexuality education?* Baradian (2007) theorising further offered the concepts ‘spacetime-matter’ and ‘phenomena/phenomenon’ to think with in the analysis of data. The concepts also became helpful for showing the transgression of constructed natural–cultural, social–scientific and human–nonhuman dichotomies in the production of the phenomenon of virginity.

Data were produced in two upper secondary classrooms. Analysis of transcribed audio recordings and written notes from participatory observations in class resulted in virginity (*oskuld*) becoming the phenomenon of further investigation. Further sorting of data enacted five questions which the students tried to act upon in teaching: *can virginity be experienced bodily, whose virginity becomes important, and when, where and why does virginity become important?* Each of these was then exemplified by specific student excerpts and investigated through the analytical concept spacetime-matter.

The results show that the practising of a norm-critical pedagogy and engagement in students’ interests provided opportunities for the phenomenon of virginity to come into being. Here, virginity materialised as a bodily, historical, cultural, and world-wide phenomenon, suggesting that teaching address it from a wide range of perspectives. Although anatomical explanations offer ways to push back against historical-religious-cultural notions of virginity, teaching also needs to acknowledge more-than-biological perspectives. For example, discussions on gendered patterns, in this study coming into being via a comparison between views on men’s and women’s virginity, and discussions on values, traditions and norms with regard to sex and sexuality. The teachers’ commitment to transgressing the boundaries of social–

scientific and natural–cultural binaries in natural science sexuality education was also important for the students’ opportunity to develop more complex understandings of *oskuld*. The five enactments of virginity might further work as a help in the construction of education on the phenomenon.

Study II: The production of contraceptive cyborgs in Swedish upper secondary sexuality education

The second study also engages with natural science sexuality education. Here, the teaching of contraceptive methods, common content in natural science sexuality education in Sweden, became the topic of investigation. The aim of the study was to explore Swedish upper secondary students’ notions of contraceptives via the guiding question: *How can students’ notions of contraceptives challenge, problematise, and develop the construction of Swedish natural science sexuality education?* Encounters with Donna Haraway’s (1991, 2016) cyborg creature image and tentacular thinking inspired and lead the analysis of data.

The data for this study were produced in one of the upper secondary classes participating in the first study. Student conversations on contraceptive methods were first noted during sorting of data with regard to the content of conversations. Data on contraceptive methods were then sorted into three topics of discussion: hormonal and digital (mobile phone application) contraceptive use, and contraceptive responsibility, which, in analysis, were materialised as contraceptive cyborgs. Each cyborg has further been exemplified with student excerpts and investigated with the help of tentacular thinking.

The students’ discussions about contraceptive methods made it possible to follow how Western techno-biopolitics during the last century has provided ways to control the woman body. First, in terms of individual temperature graphs for predicting ovulation, followed by the development of hormonal contraceptives and mobile phone contraceptive applications. This apparatus of bodily production has, in turn, influenced the fostering of adolescents in Swedish sexuality education where teaching of contraceptive methods is central. In the study, scientific facts became important for students’ knowledge production on human reproduction and the disadvantages and advantages of contraceptive use. However, the results further show that natural science sexuality education might not only be about acquiring scientific facts,

but also about developing an understanding of facts as part of historical, political, cultural and market-oriented interests. The norm-critical pedagogy practised in class provided further opportunities for students to question the absence of long lasting and successful men's contraceptive methods. This awakened an interest in contraceptive responsibility and the need for teaching to problematise gendered patterns and possible side effects of contraceptive use. The four hormonal and digital gendered contraceptive cyborgs portrayed in the study might further be a help in the construction of more exploratory education on contraceptive methods, thus meeting the needs and realities of students.

Study III: Challenging 'the elephant in the room': the becomings of pornography education in Swedish secondary school

This study engages in and troubles education about pornography. The investigation was inspired by a contemporary societal debate, but also by a recent curriculum reform concerning students' critical understandings of how sexuality and relationships are portrayed in media and other contexts, including pornography. Since most research in this field is based on extra-curricular activities, interviews, group discussions, questions and surveys, this study aimed to provide an in-situ investigation of pornography education. The questions were: *How can pornography education come into being, what troubles are materialised when this occurs, and what future forms of teaching might be possible?* Here, Donna Haraway's (1994, 2016) string figuring (SF) was used to trace and unfold threads in the complex web of data constituting education about pornography. However, since SF is not only about string figuring, but also speculative fabulations, the study further suggests possible ways forward for the teaching of pornography.

Data for this study were produced during an interdisciplinary collaboration between lower secondary school teachers and five researchers, and includes teacher-researcher meetings, participatory observations in class and student interviews. Sorting of data materialised four threads regarding teaching about pornography: gender, educational conditions, student engagement and normativity. Each of the threads were exemplified by excerpts and more closely investigated by the analytical concepts 'materialising' and 'troubling'.

In teacher discussions, pornography materialised as a gendered and scripted phenomenon. However, due to the teachers' practising of norm awareness, gendered patterns were blinded in class. This means that the approach counteracted school policy goals aiming to problematise gendered patterns in teaching. Accordingly, the suggestion is that teaching explicitly problematise gendered norms, but also other norms in pornographic material. The results further showed troubles with linking the topic to specific school subjects. A thematic week offered opportunities for the school to engage further, resulting in the construction of a specific lesson on pornography. However, since this seemed to place too much focus on the topic, it may be better to shift the teaching of pornography into discussions on, for example, sexuality, relationships, communication, consent and gender equality. This could be a help in engaging students in more nuanced discussions, reaching beyond the normative discourses present in society and acknowledging pornographic literacy among students. Teaching then also has the possibility of addressing perspectives other than risk taking and to include teaching about a variety of sexual practices—to cater to adolescent curiosity about sex.

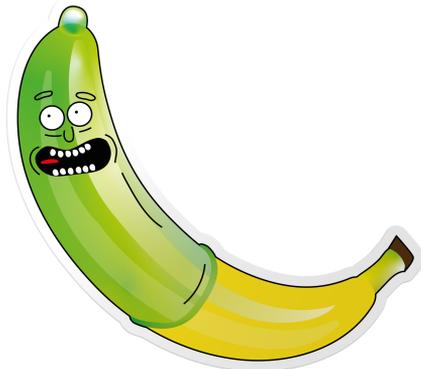
Study IV: How materialities and space-time travellings in class can breathe new life into Swedish secondary Natural Science sexuality education

The fourth study engages in what can also be viewed as the frame for and overarching aim of the thesis. Although two of the previous studies investigated educational phenomena most often linked to the teaching of natural sciences, this study tackles natural science sexuality education from a broader perspective. Teaching has been criticised for mostly engaging with medical and biological knowledge, heteronormativity, and sex-negative messages and for struggling to engage students. The aim was to investigate how these approaches could be expanded to include more teaching about relationships and sex-positivism, as well as how students can more actively become part of the production of sexuality education. The question guiding the investigation was: *How can material, spatial and temporal engagements produce new becomings of Swedish Natural Science sexuality education?* This study returns to Baradian (2007) theorising and the concept 'spacetime-matter' in the analysis of data. Since agential realism views the world as entangled and produced in intra-activity, this was also a

help in transgressing dichotomies within the field of sexuality education.

Data for this study came into being in collaboration with four lower secondary science teachers and consist of teacher–researcher meetings and participatory observations in two Biology classes. Since the sorting of data mostly confirmed the teaching to be heteronormative, preventive and based on medical perspectives, this study engaged with more exploratory data. This means that excerpts from when teachers challenged the more taken-for-granted ways of teaching were chosen for in-depth analysis through the concept spacetime-matter.

The results show that material engagements and space and time travels in classrooms can offer ways of constructing natural science sexuality education more relevant for the students. In student discussions, alcohol consumption and gendered patterns were, for example, linked to sexual activity. The teachers also suggested including positive sexual portrayals in teaching as a way to counteract one-sided understandings of sex and covering a variety of sexual practices in discussions. A heterosexual point of departure was also challenged by use of gender-neutral words in teaching, an exercise on how to use condoms and dental dams, and a suggestion that teaching also cover same-sex reproduction and parenting. This study shows how students can be invited to be part of the construction of sexuality education, while lessons still meet school policy requirements.



A material exercise on how to use a condom.

In sum, although the coming into being of the educational phenomena examined in studies I–IV were specific to each school’s human and nonhuman relationships, there were common aspects. These were the practising of norm awareness and engagements aimed at including students in teaching, often through entanglements with the material world. The studies further foregrounded transgressions of constructed dichotomies such as nature–culture and social–scientific in teaching, thereby encouraging natural science sexuality education to include broader perspectives than the mere medical and biological. In each study, gen-

dered patterns regarding sex and sexuality have also been problematised. What each of the studies further show when analysed on their own or together will be discussed in more detail in the next chapter.

7. Discussing sexuality education

The seventh and concluding chapter engages with how the four studies, alone and when analysed together, can contribute to the field of sexuality education research and school practice. How the onto-epistemological theorising made sexuality education come into being as a collective and explorative practice is then accordingly outlined and the contribution of material, spatial and temporal intra-activities are acknowledged. Intertwinings between anatomical, reproductive, and preventive content and historical, cultural, religious and societal views on sex and sexuality enacted in the studies are brought to the fore. How these entanglements could contribute to subject-specific and/or interdisciplinary teaching are further addressed. Throughout the studies, norm awareness was a central aspect of sexuality education. How this perspective affected teaching is also problematised and discussed. Since the studies made a variety of sexuality education enactments come into being, suggestions for the future practice and indeed the field of research are made.

Sexuality education—a collective and explorative practice

Through engagements with Baradian (2000, 2007, 2011, 2014) and Harawayan (1991, 1994, 2016) theorising, the teaching of sexuality education came into being as a collective practice (Bergstedt, 2021; Hasse, 2020). However, explorative activities were also shown to be central in teaching. In the upper secondary school studies, this came into being through laboratory work and an assignment on norms—activities that not only engaged the students' interest but also made them confront their own notions about virginity (Study I) and question the possible side effects of contraceptive methods and contraceptive responsibility (Study II). In the lower secondary school studies, the focus shifted to also include teacher perspectives. Accordingly, ways to construct teaching came even more to the fore. In regard to education

about pornography, much time in meetings was devoted to discussions on how to include and engage students and their perspectives. Consequently, questions and cases were used in the construction of a more open-ended teaching. The actual teaching did, however, show that it was more difficult than expected to produce explorative discussions in regard to pornography (Study III). In the fourth study, the science teachers were concerned with constructing lessons which went beyond mere medical and preventive content. Here, a case study provided opportunities for the 15–16-year-old students to discuss relationships and sexual activities. Moreover, in three of the schools sexuality education also came into being as a collective and explorative teacher–researcher practice. Discussions between teacher colleagues and researchers were central in constructing teaching differently from how it had previously been conducted in the schools. For example, new content was added, and teaching became more student centred.

These results further coincide with previous scholarly calls for attentiveness to how the teaching unfolds during a lesson (Allen, 2021b; Renold, 2018). However, teachers may find it hard to trust in this unfolding. The four studies might therefore serve as an inspiration for how this can be enacted in classroom practice. The studies further show that the students became very engaged in the exploratory opportunities that the teaching provided, when, for example, student questions were taken seriously. It is, however, important to clarify that explorative and attentive sexuality education is not contrary to teaching that is planned and based on school policy requirements. On the contrary, and as is explicitly shown in the third and fourth studies, this way of teaching required much thought and planning to come into being.

Learning through material, spatial and temporal intra-activity

Throughout the four studies, material arrangements were central aspects of the students' learning processes (Bodén et al., 2019; Hasse, 2020; Milne & Scantlebury, 2019). For example, tampons and a book produced discussions on virginity and a mobile phone app made the students question hormonal contraceptive methods. Questions, cases and a critical film about pornography materialised society's views on adolescent consumption of pornography and these implicit views, then, in turn, restricted the students' discussions. Discussions about a

cup of tea engaged students in deliberations on alcohol consumption, sex and personal reputation. Likewise, rulers, playdough and felt tip pens have been shown to be productive forces in the construction of a more diverse and complex sexuality education in the UK (Renold, 2019; Ringrose et al., 2019). However, not only material but also temporal and spatial engagements intra-acted with students in the learning. Time and space, for example, brought historical and cultural perspectives on virginity and contraceptive methods to the fore. The intra-activities also offered opportunities for students to prepare for future encounters related to sex, sexuality and reproduction.



A cup of tea produced student discussions.

In sum, the results of the four studies suggest that sexuality education be viewed as a shared responsibility among teachers and be planned jointly by teachers of the same subject-specific competency and/or in interdisciplinary collaborations. Teaching furthermore needs to be attentive to the unfolding at hand and invite students to be part of its becoming. Since material, temporal, and spatial engagements have been crucial parts of teaching and learning processes in the studies, the word ‘spacetime-matter’ is further suggested as an inspiration for the construction of a more open-ended and complex sexuality education. Consequently, the results stress the need for more research on how explorative and collective teaching can come into being in subject-specific and interdisciplinary sexuality education practice.

Sexuality education—a historical, cultural, religious, and societal practice

Investigations of natural science content, such as genital anatomy, reproduction and contraceptive methods were central in three of the studies. This content is supported in the Swedish Biology syllabus (Swedish National Agency for Education, 2011, 2022), and some aspects are often covered in sexuality education worldwide (Lameiras-Fernández et al., 2021). However, since an onto-epistemological framing views the world as entangled rather than dichotomously constructed (Barad, 2007; Haraway, 1991, 1994, 2016), binaries such as

natural–cultural and social–scientific are challenged. This view was also supported in the studies when, for example, anatomical and contraceptive learning came into being in intertwinement with political, cultural, historical, religious and market-oriented views on sex and sexuality (studies I and II). The transgression of dichotomies in teaching can further be used to challenge limited ways of becoming in Swedish sexuality education. Teaching aimed at newly arrived students have, for example, been criticised for not taking the students’ own perspectives into account (Bengtsson & Bolander, 2020; Bolander & Bredström, 2021; Bredström et al., 2018; Bredström & Bolander, 2019). Accordingly, sexuality education should not only be viewed as a practice where students are only to learn about medical and biological ‘facts’, but also a practice where they are supposed to develop understandings of facts as part of a wider web of interests. It is thereby suggested that natural science sexuality education not be taught as an isolated biological and medical phenomenon, but in intra-activity with cultural values, traditional beliefs, religious approaches and societal norms—because these perspectives are all part of the production of sexuality education (Rasmussen, 2016, 2017; Rasmussen et al., 2022; Sanjakdar, 2018; Sell & Reiss, 2022; Svendsen, 2017; UNESCO, 2018). It is, however, difficult to know from whence perspectives and views originate. Swedish sexuality education is not only embedded in a secular yet multicultural society, but also has Christian roots. In the studies, cultural, historical, religious and societal views on sex and sexuality have therefore been treated as intertwined.

The fourth study investigated yet another constructed dichotomy, that of pleasure–danger. Sexuality education, in Sweden and internationally, has been stated to engage with risk behaviour and sex-negative messages (Lameiras-Fernández et al., 2021; Unis & Sällström, 2020). Pleasure has further been shown to be a challenging perspective to address in teaching (Allen & Carmody, 2012; Lamb et al., 2013; Wood et al., 2019). However, the fourth study provided several suggestions on how danger and pleasure can be viewed as enriching perspectives. The science teachers, for example, proposed that a more preventive teaching could start in imaginary discussions on a variety of sexual practices and encounters. How this can be done in practice needs further scholarly attention.

In sum, it is suggested that sexuality education nurture different ways of becoming (Bazzul, 2023; Bolander & Bredström, 2021; Bredström et al., 2018; Bredström & Bolander, 2019). This was, for example, acknowledged when upper secondary students engaged in

the myth of the hymen and when they questioned gendered contraceptive responsibility. During ongoing research collaborations, the teachers also began nurturing different ways of becoming in teaching. They questioned what education about pornography aimed to achieve (Study III) and elaborated on the preventive and heteronormative premise of natural science teaching about sexuality (Study IV). The results of the studies further strengthen interdisciplinary sexuality education enactments. Swedish sexuality education is an interdisciplinary knowledge area where different school subjects are meant to contribute with diverse perspectives on sex and sexuality (see, for example, Swedish National Agency for Education, 2014a). If interdisciplinary collaborations are not possible due to the way a school is organised, it is suggested that broader perspectives be part of subject-specific teaching, as shown in the studies. This, in turn, stresses the need for more classroom-based studies on how natural science sexuality education can be linked to cultural and societal views, how interdisciplinary collaborations can come into being, and how diverse perspectives can be nurtured in sexuality education in general.

Sexuality education—fostering of norm awareness and gender equality

When the four studies were linked together, it became apparent that the norm-critical pedagogy introduced into Swedish schooling over the last decade had influenced sexuality education (Björkman et al., 2021; Bromseth, 2010; Hill, 2021). Norm awareness and/or use of gender-neutral concepts and pronouns were part of the teaching in all the participating schools. This could, however, be a result of the schools' interest in the matter or due to their participation in this research. A general statement about the scope of this practice can therefore not be made. In the studies, these enactments were further based on the teachers' attempts to foster norm awareness and to include LGBTQ perspectives in their teaching. Although the use of gender-neutral words was supposed to include LGBTQ persons, it unintentionally led to other problems, like gender blindness. Even though the teachers' own discussions had concluded that pornography was often gendered and scripted (Study III), their use of gender-neutral words in questions and cases did not lead to the kind of gendered norms often portrayed in mainstream pornographic material being highlighted or problematised. The same pattern came into being in the fourth study.

While the teacher's use of a gender-neutral case produced discussions on relationships and sex, this also blinded norms restricting women's sexuality (Study IV). In the upper secondary schools, however, teaching was constructed differently. Here, the focus was on problematising norms, rather than using gender-neutral words in teaching. It made gendered patterns in relation to virginity and contraceptive methods explicit and these were problematised in the teaching (studies I and II).

In the studies, heterosexual norms were also problematised—implicitly by the aforementioned use of gender-neutral words and pronouns and more explicitly when the teachers stressed the need for teaching to cover a variety of sexual practices to counteract notions of sex as merely penis-in-vagina (a notion common among students). LGBTQ perspectives were also brought to the fore when it was suggested that teaching include same-sex possibilities for reproduction (Study IV). Some of these perspectives are covered in sexuality education in Swedish Biology textbooks (Junkala et al., 2021), although perspectives on disability and asexuality are missing—as they were in the studies of this thesis.

In sum, the results of the studies suggest that consideration be given to how a norm-critical pedagogy could fruitfully be used in teaching, without counteracting policy goals that promote gender equality—a long-term goal in Swedish school policy (see, for example, Skolöverstyrelsen, 1969). It is further proposed that sexuality education include teaching about a variety of sexual practices and engage perspectives on disability. Asexuality is also a matter that needs to be acknowledged in teaching. However, further scholarly attention is required to investigate how these diverse perspectives could best be enacted; not least since the third study identified some student discomfort with pleasure-oriented teaching.

Conclusions

This thesis has engaged with the becomings of Swedish sexuality education. The main focus on lower and upper secondary natural science sexuality education grew out of my own experiences and wonders from my time as a teacher, the strong position of science subjects within the knowledge area, and the doctoral project being framed by the research topic of science education.

The onto-epistemological framing brought to the fore collectivity, entanglements of constructed dichotomies, and material, spatial, and temporal intra-activities in the data. Accordingly, it is stressed that sexuality education should be viewed as a collective and explorative practice and that subject-specific and/or interdisciplinary teaching should frame biological and medical content within the broader context of cultural, historical, religious and societal views on sex and sexuality. Finally, considerations on how norm awareness and gender equality could fruitfully be combined in teaching are needed. These proposals apply to sexuality education practice and are also a call for more research on the becoming of sexuality education.

The participating teachers and students in these studies showed that it is possible for Swedish sexuality education to be a knowledge area that is capable of transforming—from more traditional ways of teaching into a more attentive, explorative, and inclusive practice. However, this approach to teaching requires time and opportunities for collaboration. Each school is hereby invited to think about how this can be done in practice.

As my work with this thesis can hereby be regarded as complete and I return to being an upper secondary teacher, I would like to devote a few words to that which I will take back with me into practice. Ironically, sexuality education is the first topic I will teach. Sexuality education is to come into being as an interdisciplinary project including civics, Swedish as a second language, Music, Physical Education, Arts and Biology. I will really enjoy planning and discussing with my fellow colleagues—this is, after all, a joint and explorative work. I also plan to engage the students in teaching, not merely by posing questions, but through material activities, including laboratory work and drawings. These activities will hopefully give me the opportunity to be more attentive to the students' own queries and to acknowledge how the teaching unfolds. How to take cultural and religious perspectives into account will be one of our main challenges. We have also planned for two teachers to sometimes be present in the classroom (me and the Swedish as a second language teacher), which I hope will not only facilitate more discussions in general but also encourage us to take on what can be considered controversial issues in particular. Collegial support can be crucial for daring to stay in the heat of the moment. I will also try to be cautious about how the norm-critical pedagogy practised at school acknowledges gendered patterns. However, even though I bring many thoughts and queries back to school with

me, one can never anticipate how it all comes into being in teaching. Since sexuality education is highly situated and relational, how it really comes into being remains to be seen.

8. Svensk sammanfattning

Sexualundervisning har varit en obligatorisk del av svensk skola under närmare sjuttio år. Kunskapsområdet som genom åren antagit en mängd olika former (Centerwall, 2005a, 2005b) återfinns idag i skolans alla stadier och i kurs- och ämnesplanerna för många skolämnen. Undervisningen ska både ge eleverna olika perspektiv på sexualitet och relationer och främja jämställdhet (Skolverket, 2014a), ett långsiktigt mål för svensk skola (se till exempel Skolöverstyrelsen, 1969). Trots detta har en tematisk kvalitetsgranskning visat att undervisningen varierar i kvalitet, både inom och mellan skolor (Skolinspektionen, 2018). Förutom att skolor oftast inte samordnar kunskapsområdet (Unis & Sällström, 2020) upplever lärare undervisningen som utmanande. De tycker sig varken ha kunskaper om HBTQ-perspektiv eller känner sig uppdaterade kring olika samhällstrender (Skolinspektionen, 2018). Frågor som biologilärare uppger svåra att undervisa om och som knyter an till kunskapsområdet är till exempel sexuell läggning, omskärelse, oskuld, preventivmedel, samtycke och pornografi (Skolinspektionen, 2022). Enligt Folkhälsomyndigheten (2017) anser ungdomar mellan 16 och 29 år att undervisningen ger viktig kunskap om kondomanvändning, anatomi och graviditet men de efterfrågar samtidigt mer information om genus, jämställdhet, relationer, HBT-perspektiv, HIV och normer. Gymnasieelever har vidare bekräftat att undervisningen mest handlar om negativa aspekter av sexualitet och sex och är heteronormativ. Ämnen de saknar undervisning om var exempelvis abort, sexuella övergrepp, relationer, oskuld och myten om mödomshinnan. De vill också att undervisningen bemöter och korrigerar fördomar och missuppfattningar (Unis & Sällström, 2020). Även om studier har betonat att seksualkunskap bör ta mer hänsyn till elevernas behov och önskemål (Unis & Sällström, 2020) bjuds de sällan in till att vara en del av utformning eller utvärdering av undervisningen (Skolinspektionen, 2018).

En läroplansreform med syftet att stärka sexualundervisningens kvalitet genomfördes nyligen (Skolverket, 2019). Förutom att kun-

skapsområdet bytt namn från *sex- och samlevnad* till *sexualitet, samtycke och relationer* har kursplaner reviderats. En formulering om samtycke, hedersrelaterat våld och förtryck samt ”hur relationer och sexualitet framställs i olika medier och sammanhang, bland annat i pornografi” har också lagts till i läroplanens inledande delar (Skolverket, 2022, s. 8). Detta väcker i sin tur frågor om hur undervisningen kan genomföras i praktiken. Även om flera praktiktäna studier med en naturvetenskaplig inramning (Lundin, 2014; Orlander, 2016; Orlander & Lundegård, 2020; Orlander Arvola, 2014) och om undervisning för nyanlända elever (Bengtsson & Bolander, 2020; Bolander & Bredström, 2021) har publicerats betonas behovet av fler klassrumsstudier från en svensk kontext (Ketting & Ivanova, 2018).

Avhandlingens övergripande syften

Tidigare forskning har framhållit behovet av en mer bejakande och elevinkluderande sexualundervisning som engagerar sig i mer komplexa frågor än enbart medicinska och biologiska perspektiv. Det finns också ett uttryckt behov av fler klassrumsbaserade studier från en svensk kontext. Avhandlingen syftar därmed till att undersöka hur sexualundervisning på högstadiet och gymnasiet kan ta form. Ytterligare ett syfte är att utforska hur terorbildningen skulle kunna bidra till ny förståelse av vad sexualundervisning kan vara och ge förslag till undervisning och lärande inom kunskapsområdet.

Bakgrund

Sexualundervisningen har sedan 1955 antagit en mängd olika former. Kunskapsområdet kan i korthet beskrivas som initialt ha förespråkat sexuellt umgänge inom äktenskapet (Centerwall, 2005a) till att undervisa om sexuellt ansvar genom preventivmedelsanvändning (Bolander, 2015; Sandström, 2001) och ansvarsfullt beslutsfattande (Centerwall, 2005b). Under det senaste decenniet har normkritisk pedagogik fått spridning inom det svenska utbildningssystemet (Björkman m. fl., 2021). Genom att identifiera hur sociala kategorier, normer och makt både konstrueras och reproduceras kan undervisningen problematisera konsekvenser för individ och samhälle (Hill, 2021). Normkritisk pedagogik har också föreslagits som ett förhållningssätt för sexualundervisning (Skolverket, 2013b, 2013c, 2014b) och ses bland annat som

ett sätt att stävja diskriminering, kränkande behandling och att inkludera olika sexuella identiteter i undervisningen (Gunnarsson & Ceder, 2021). Normmedvetenhet var på olika sätt framträdande i alla fyra studier inkluderade i avhandlingen.

Under 2010-talet ökade antalet nyanlända elever i svensk skola (Skolverket, 2015) vilket innebar att specifika utbildningsprogram och material riktade mot elevgruppen utformades (Bredström & Bolander, 2019). Sexualundervisning för nyanlända har kritiserats för att utgå från ett bristperspektiv istället för att ta hänsyn till elevernas egna erfarenheter och kunskaper. Undervisningen tar heller inte rasism, traditioner och religiösa perspektiv i beaktande (Bolander & Bredström, 2021).

Internationellt har sexualundervisning kritiserats för att ofta ha ett fokus på risk och negativa aspekter av sex och sexualitet (Lameiras-Fernández m. fl., 2021) och för att vara heteronormativ (Allen, 2007). Forskare har också efterfrågat en seksualkunskap som inkluderar kulturella och religiösa perspektiv i undervisningen (Rasmussen, 2016, 2017; Rasmussen m. fl., 2022; Sanjakdar, 2018; Sell & Reiss, 2022; Svendsen, 2017).

Teoretiska engagemang

Avhandlingen tar sin utgångspunkt i Karen Barads (2000, 2007, 2011, 2014) och Donna Haraways (1991, 1994, 2016) teoretiseringar. Här ses ontologi (varande) som sammanflätat med epistemologi (vetande) (Bergstedt, 2021; Plauborg, 2018; Ringrose m. fl., 2021). Centralt i Barads (2007) teoretisering är kritiken av att materialitet hamnat i skymundan för språk och diskurs. Materialitet och diskurs ses istället som sammanflätade i en materiellt-diskursiv praktik. Den onto-epistemologiska teoretiseringen ifrågasätter vidare skildringar av en dikotom värld bestående av objekt med förutbestämda och absoluta egenskaper och gränser. Världen ses snarare som producerad genom fenomen som uppstår i intra-aktiviteten mellan olika materialiteter, rumsligheter och temporaliteter, beskrivet genom begreppet *spacetime matter* (Barad, 2007). Även Haraway (1991, 1994, 2016) ser världen som sammanflätad och visar på överskridanden vad gäller dikotomier som mänskligt-icke mänskligt, natur-kultur och natur-teknik (Ringrose m. fl., 2021). Inom teoribildningen ses också lärande som en process som sker genom intra-aktivitet mellan människor, materi-

aliteter och diskurser (Lenz-Taguchi, 2010; Plauborg, 2018). Kunskapsproduktion blir därmed en relationell och materiell praktik (Bodén m. fl., 2019; Hasse, 2020).

Etiska aspekter ses vidare som sammanflätade med ontologiska och epistemologiska antaganden. Barad (2007) har valt att synliggöra sammanflätningen genom att kalla sin teoretisering för etisk onto-epistemologi (*ethico-onto-epistemology*). Här blir etik till genom relationer och intra-aktivitet med materiella praktiker (Bazzul, 2023; Scantlebury & Milne, 2020; Taylor, 2018). Det innebär att forskaren behöver ta ansvar för mänskliga sammanflätningar med världen (Kayumova & Bazzul, 2019). Haraway har beskrivit det som ett ansvar för vem och vad som blir till i mötet mellan människor och icke-människor (Taylor, 2018). Etik utgör alltså snarare en del av forskningspraktiken och processen än blir till genom regler och föreskrifter (Bozalek m. fl., 2018). Arbetet med avhandlingen har inneburit en mängd olika etiska överväganden. Till exempel om vilken sexualundervisning som skulle vara i fokus, huruvida analysen skulle vara kritisk eller utforskande och hur deltagande elever och lärare skulle namnges. Etiska överväganden har också innefattat två olika etikprövningar beträffande studier genomförda på gymnasiet respektive högskolan.

Postkvalitativa engagemang

Avhandlingen är en del av det kvalitativa forskningsfältet. Då den också syftar till att producera forskning förenlig med de just beskrivna onto-epistemologiska antagandena (MacLure, 2017; St. Pierre, 2018, 2021a) kan dataproduktion och analys också ses som postkvalitativ (Gunnarsson & Bodén, 2021). I en värld som blir till genom sammanflätningar, relationer och intra-aktivitet kan inte heller forskaren ses som distansierad och separerad från forskningskontexten (Davies, 2014; Jackson & Mazzei, 2022; Lather & St. Pierre, 2013; St. Pierre, 2011). MacLure (2013b) har beskrivit det som att forskarens egna undringar också påverkar valet av vad som kommer att studeras närmare. Dataanalys föreslås också ske i sammanflätning med den valda teoribildningen (Jackson & Mazzei, 2012, 2022; Mazzei, 2014). Mazzei (2014) beskriver det som att läsa data och tänka teori samtidigt. Det innebär att avhandlingens analyser genomfördes med hjälp av teoretiska begrepp (Colebrook, 2017; Taguchi & St. Pierre, 2017) från

Barads (2000, 2007, 2011, 2014) och Haraways (1991, 1994, 2016) texter.

Dataproduktion och analys

Data producerades i samarbete med fyra skolor.

Gymnasiet

Då avhandlingens initiala fokus var gymnasiets naturvetenskapliga sexualundervisning genomfördes två studier på två olika skolor. Eleverna i de båda klasserna gick i årskurs 2, var mellan 17–18 år gamla och läste kursen Naturkunskap 1b (Skolverket, 2012). I den första klassen studerade de 30 deltagande eleverna på samhällsvetenskapligt program. Här omfattade sexualundervisningen 18 lektioner som planerades och utvärderades på veckobasis tillsammans med den deltagande läraren. Deltagande observationer i klassrummet resulterade i 32 sidor anteckningar (Times New Roman 12 punkter, radavstånd 1.0, samma för all sammanställd data). Den andra klassen utgjordes av 23 deltagande elever vid det humanistiska programmet. Läraren planerade, genomförde och följde upp undervisningen medan jag antecknade och tog ljudupptagningar i klassrummet. Sexualundervisningen omfattade 12 lektioner och resulterade i 117,5 sidor transkript. Data från skola 1 ingår i studie I och data från skola 2 både i studie I och II.

Högstadiet

Under 2019 blev jag en del av en forskningsgrupp intresserad av sexualundervisning. Efter att gruppen tilldelats forskningsmedel från Vetenskapsrådet [2019-03962] breddades doktorandprojektet till att också inkludera högstadiet. Inom ramen för forskningsprojektet genomfördes en pilotstudie och studier i skola A, B, C och D. I avhandlingen ingår dock enbart data producerad i samarbete med skola A och D. I skola A uttryckte lärarna en önskan om att inkludera ämnet pornografi i skolans sexualundervisning, en årligen återkommande temavecka för årskurs 8. Fem ämneslärare deltog i ett arbete som kom att omfatta fyra möten á 90 minuter, en 90 minuters lektion om pornografi och två utvärderingsmöten. Det genomfördes också gruppintervjuer med de 25 elever (14–15 år gamla) som deltog i projektet. Alla aktiviteter dokumenterades genom ljudupptagningar och anteckningar som resulterade i 53,5 sidor datamaterial (transkript och anteckningar). På skola D deltog lärararbetslaget för årskurs 9 i forskningsprojektet. Här genomfördes sexualundervisningen inom ramen för de skolämnen som de 13

deltagande lärarna representerade. Då forskargruppen också samarbetade med olika ämneslärare valde jag att fokusera på skolämnet biologi. Data om naturvetenskaplig sexualundervisning producerades under diskussioner med skolans fyra NO-lärare, ett planeringsmöte med biologiläraren ansvarig för undervisningen, två 60 minuter långa lektioner i biologi och ett utvärderingsmöte med alla lärare i slutet av samarbetet. Totalt 33 elever i åldern 15–16 år fördelade på två klasser ingick också i studien. Möten och deltagande klassrumsobservationer dokumenterades med anteckningar och ljudupptagningar och resulterade i 39,5 sidor transkript. Data producerad i samarbete med skola A utgör studie III och data från skola D ligger till grund för studie IV.

Även om data analyserades med hjälp av teoretiska begrepp genomfördes också olika sorteringar av materialet. Datamaterialet från gymnasieklassrummen lästes igenom flera gånger och grupperades i fysiska pappershögar utifrån dess innehåll. Elevsamtal om oskuld kom att utgöra studie I. Elevsamtal om preventivmedel kom att utgöra studie II. I de två studier som genomfördes på högstadiet tog undersökningsområdet form under pågående forskningssamarbeten. Då det initiala samarbetet med skola A handlade om undervisning om pornografi kom det att utgöra grunden för studie III. Naturvetenskaplig sexualundervisning undersöks närmare i studie IV. Datamaterialet från högstadieskolorna sorterades med hjälp av mjukvaruprogrammet MAXQDA 2020. Även denna gång baserades sorteringen på innehållet.

Sammanfattning av artiklarna

I sammanläggningsavhandlingen ingår studie I–IV.

Studie I

Avhandlingens första studie tar sin utgångspunkt i naturvetenskaplig sexualundervisning och frågor som rör könsorganens anatomi och myten om mödomshinnan. Det är ett ämnesområde som visat sig intressera svenska elever generellt och som lärare också anser vara svårt eller kontroversiellt att undervisa om. Elever från de båda deltagande gymnasieklasserna (skola 1 och 2) visade också ett intresse för att undersöka ämnesområdet närmare. Studien syftar till att utforska svensk naturvetenskaplig sexualundervisning som en materiellt-diskursiv

praktik med ett fokus på gymnasieelevers föreställningar av oskuld som rumsliga, temporala och materiella konstruktioner. De forskningsfrågor som studien utgår ifrån är: *Hur tar fenomenet oskuld sig uttryck i elevsamtal och hur påverkar detta konstruktionen av sexualundervisningen?* Vid sortering av data tog fem frågor som elevernas samtal försökte besvara form: *kan oskuld upplevas kroppsligt, vems oskuld blir viktig och när, var och varför blir oskuld viktig?* Varje fråga exemplifieras med elevexcerpt i studien. Frågorna kan också ses som en hjälp för lärare vid konstruerandet av undervisning som knyter an till ämnesområdet oskuld. I studien användes Karen Barads (2007) teoretiska begrepp fenomen på ett övergripande plan (fenomenet oskuld) och *spacetime* i näranalyser av de valda elevexcerpten. Den teoretisk utgångspunkten synliggjorde också ett överskridande av konstruerade dikotomier så som natur-kultur, socialt-vetenskapligt och mänskligt-icke mänskligt i elevernas samtal om oskuld. I elevernas samtal konstruerades oskuld som ett kroppsligt, historiskt, kulturellt och världsomspännade fenomen. Det behöver därför också adresseras från en mängd olika perspektiv. Samtidigt som kunskap om könsorganens anatomi kan motverka de historiska, kulturella och religiösa föreställningar som begränsar kvinnors sexualitet behöver undervisningen också öppna upp för fler än enbart biologiska och medicinska perspektiv. Då får också eleverna möjlighet att utveckla en mer komplex förståelse av oskuld. Till exempel föreslås dikussioner om könsmönster vilket i studien visade sig genom en jämförelse av synen på mäns och kvinnors oskuld och diskussioner om värderingar, traditioner och normer om sex och sexualitet.

Studie II

Även avhandlingens andra studie tar sin utgångspunkt i naturvetenskaplig sexualundervisning. Här utforskas undervisning om preventivmedel—ett vanligt förekommande innehåll i sexualundervisning i Sverige. Studien syftar till att utforska gymnasieelevers föreställningar om preventivmedel utifrån forskningsfrågan: *Hur kan elevers föreställningar om preventivmedel utmana, problematisera och utveckla naturvetenskaplig sexualundervisning?* I studien användes Donna Haraways (1991, 2016) cyborgvarelse och tentakulärt tänkande vid analys av data. En cyborg kan beskrivas som en människa-maskinhybrid bestående av biologisk vävnad och syntetiska eller digitala delar. Tentakulärt tänkande är ett sätt att synliggöra sammanflätningar och komplexiteter vid analys av data. Elevernas samtal berörde hormonella

preventivmedel, en preventiv mobilapplikation och ansvarsfördelning. En näranalys av elevexperpt från de tre samtalsområdena visar hur västerländsk tekno-biopolitik under närmare hundra år tillhandahållit sätt att kontrollera kvinnans kropp. Först genom temperaturmätning avsedd att förutsäga ägglossning, sedan genom utvecklandet av hormonella preventivmedel och en preventiv mobilapplikation. Studiens resultat visar också att biologisk och medicinsk fakta blir viktig för att eleverna ska kunna ifrågasätta för- och nackdelar med preventivmedelsanvändning. Det blir också tydligt att sexualundervisning inte enbart handlar om naturvetenskaplig kunskapsproduktion utan också om att utveckla en förståelse för medicinsk och biologisk fakta som en del av historiska, politiska, kulturella och marknadsrelaterade intressen. Granskning av normer gav också eleverna möjlighet att ifrågasätta frånvaron av framgångsrika preventivmedel för män. Undervisning föreslås därför problematisera könsmonster i form av preventivt ansvar och möjliga biverkningar av preventivmedelsanvändning. De fyra hormonella, digitala och könade preventiva cyborgerna som tog form i studien kan också vara en hjälp i att konstruera en mer utforskande undervisning om preventivmedel som i större utsträckning möter elevernas behov och verkligheter.

Studie III

Den tredje studien bryter mot avhandlingens initiala fokus på naturvetenskaplig sexualundervisning och utforskar istället undervisning om pornografi. Studiens forskningämne är vidare ett resultat av rådande samhällsdebatt, lärarnas önskan om att adressera pornografi i undervisningen och en läroplansreform med formuleringar om att kritiskt granska hur sexualitet och relationer framställs, bland annat inom pornografi. Då tidigare forskning kring ämnet främst har genomförts utanför skoltid, genom intervjuer, gruppdiskussioner och enkätundersökningar syftar den här studien till att bidra med en praktisknära studie. Forskningfrågorna är: *Hur kan undervisning om pornografi ta form, vilka utmaningar materialiseras i undervisningen och vilka framtida undervisningsformer kan vara möjliga?* Donna Haraways (1994, 2016) snörlek användes till att synliggöra den komplexa väv av data som kom att utgöra undervisningen. I sortering av data materialiserades fyra trådar som kan tänkas vara av vikt i planering av undervisning om ämnesområdet: genus, organisatoriska förutsättningar, elevinkludering och normativitet. Varje tråd har exemplifierats med

elevexcerpt och genomgått en näranalys. I lärarnas samtal blev pornografi ett genuskodat fenomen som följer specifika sexuella skript. Men då själva undervisningen utgick ifrån ett normmedvetet förhållningssätt, vilket i den här studien innebar ett användande av könsneutrala begrepp och pronomen, osynliggjordes könsmönster förekommande i pornografiskt material. Det skapar en spänning mellan ett normmedvetet förhållningssätt och de jämställdhetsmål som syftar till att problematisera könsrelaterade mönster i undervisningen. Resultaten visade också på utmaningar med att adressera frågor om pornografi inom ramen för specifika skolämnen och att inkludera elevernas perspektiv i undervisningen. Då en specifik lektion om pornografi kan bli normerande föreslås istället att undervisningen konstrueras som en del av diskussioner om till exempel sexualitet, relationer, kommunikation, samtycke och jämställdhet. Det skulle kunna leda till mer nyanserade diskussioner bortom risker och normativa diskurser. För att möta ungas nyfikenhet kring sex skulle undervisning om olika sexuella praktiker kunna utgöra en del av skolans sexualkunskap.

Studie IV

I avhandlingens fjärde studie är naturvetenskaplig sexualundervisning åter i fokus. Även om två tidigare studier undersökt fenomen som kan knytas an till kunskapsområdets naturvetenskapliga del—könsorganens anatomi och preventivmedel—tar sig den här studien an undervisningen ur ett bredare perspektiv. Svensk sexualundervisning har kritiserats för att mestadels fokusera på en förmedling av medicinsk och biologisk fakta, utgå ifrån ett heteronormativt och riskbetonat perspektiv och för att inte inkludera eleverna i undervisningen. Studien syftar därmed till att utforska hur en mer sexpositiv och elevcentrerad undervisning med betoning på relationer skulle kunna ta form. Forskningsfrågan för studien är: *Hur kan materiella, rumsliga och temporala engagemang bidra till nya konstruktioner av svensk naturvetenskaplig sexualundervisning?* Barads (2007) teoretisering kring världen som relationell och sammanflätad snarare än dikotomt konstruerad blev återigen en utgångspunkt i analys av data. Då sorteringen av data bekräftade de tidigare kritiserade utgångspunkterna för naturvetenskaplig sexualundervisning utgår analysen från data av mer utforskande karaktär. Barads teoretiska begrepp *spacetime* användes för näranalys av föreslagna och genomförda undervisningsaktiviteter. Enligt studiens resultat kan materialiteter och rumsliga och temporala förflyttningar från klassrummet erbjuda eleverna att delta i utformandet

av sexualundervisningen under pågående lektion. Lärarna gav också flera exempel på hur en mer lustbetonad sexualundervisning skulle kunna ta form. En undervisning som utgår från en positiv syn på sex och sexualitet skulle kunna motverka en alltför ensidig betoning av sexuella risker. Ett heterosexuell utgångspunkt utmanades genom att könsneutrala begrepp och pronomen användes i undervisningen, en praktisk övning med kondomer och slickklappar och förslag om att undervisningen borde adressera flera olika sexuella praktiker och samskönad reproduktion och föräldraskap. Studien ger förslag på hur elever kan göras delaktiga i konstruktionen av sexualundervisningen samtidigt som undervisningen möter kraven i skolans styrdokument.

Diskussion

I avhandlingen tar skolans sexualundervisning formen av en kollektiv och utforskande praktik (Allen, 2018; Hasse, 2020; Plauborg, 2018). I studierna konstrueras undervisningen till att inkludera elevernas frågor och perspektiv. Diskussioner och aktiviteter ger dem också möjlighet att vara en del av hur undervisningen tar form under pågående lektion (Allen, 2021b; Renold, 2018). Även lärarnas arbete med kunskapsområdet blev kollektivt och utforskande. Diskussioner med lärarkollegor och deltagande forskare var centrala i konstruktionen av en undervisning som skiljer sig från hur den tidigare bedrivits på skolorna. Undervisningen blev mer elevcentrerad, engagerade sig i nya frågor och blev mer utforskande och komplex. Materiella möten visade sig också vara en central del i elevernas lärandeprocesser (Bodén m. fl., 2019; Hasse, 2020; Milne & Scantlebury, 2019). Tillsammans med olika temporaliteter och rumsligheter synliggjorde de historiska och kulturella perspektiv och framtida möjligheter vad gäller sex, sexualitet och relationer.

Då teoribildningen ser världen som relationell och sammanflätad istället för dikotomt konstruerad (Barad, 2007; Haraway, 1991, 1994, 2016) synliggjordes samspelet mellan olika perspektiv på sex och sexualitet i undervisningen. Vad som kan ses som naturvetenskaplig fakta om till exempel preventivmedel och könsorganens anatomi sammanflätades med politiska, kulturella, historiska, religiösa och sociala perspektiv. Det kan i sin tur göra så att fler perspektiv och elevernas egna frågor tas i beaktande (Bolander & Bredström, 2021) och möjliggöra för fler sätt att bli till i undervisningen (Bazzul, 2023). Kulturella vär-

deringar, traditioner, religiösa förhållningssätt och samhällsnormer behöver följdaktligen utgöra en del av skolans sexualundervisning (Rasmussen, 2016, 2017; Rasmussen m. fl., 2022; Sanjakdar, 2018; Sell & Reiss, 2022; Svendsen, 2017). Kunskapsområdet är dessutom tvärvetenskapligt och olika skolämnen är tänkta att bidra med olika perspektiv till undervisningen (Skolverket, 2014a).

Vid genomförandet av de fyra studierna blev det tydligt att den normkritiska pedagogiken som introducerats i svensk skola (Björkman m. fl., 2021; Bromseth, 2010; Hill, 2021) också har påverkat sexualundervisningen. Normmedvetenhet var på olika sätt en del av undervisningen, till exempel genom ett synliggörande av heterosexuella normer och genom ett användande av könsneutrala begrepp. Trots avsikten att inkludera hbtq-personer i undervisningen uppstod ett dilemma då könsmönster osynliggjordes. Därför behöver lärare fundera kring hur normmedvetenhet kan komma till uttryck i undervisningen utan att skolans jämställdhetsmål hamnar i skymundan.

Sammanfattningsvis visar avhandlingen att sexualundervisning bör ses som en kollektiv, relationell och utforskande praktik, både i klassrummet och i lärarnas arbete med att konstruera undervisningen. Det är vidare ett kunskapsområde som skapas i intra-aktivitet med olika materialiteter, rumsligheter och temporaliteter och där naturvetenskaplig fakta inte bör separeras från kulturella, historiska, religiösa och samhälleliga perspektiv på sex och sexualitet. Det är ett undervisningssätt som kräver tid. Varje skola behöver därför fundera kring hur kunskapsområdet kan ta form inom ramen för den egna verksamheten.

9. References

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10. Appendix

Interview guide student group interviews,
lower secondary school A

Introduktion

Detta är inte betygsättande och inget som lärarna får ta del av. Det är anonymt så ingen kommer se vem som sagt vad. Alla tankar är välkomna, vi vill höra vad ni tänker. Intervjuaren tar med schema, utskrivet på A3.

1. Markera på schemat:

☺ Det ni tyckte var intressant.

☹ Det ni tyckte var ointressant.

L - Något ni LÄRT er.

S - Något som var svårt.

P - Någon gång ni kände att ni fick prata.

O - Något som var obekvämt.

N - Något som kändes nytt.

Ä - Något ni skulle ändra i upplägget.

2. Fokus på elevernas erfarenheter av undervisningsmomentet:

a) Berätta om era tankar kring undervisningen om sex- och samlevnad.

b) Vad var intressant/ointressant?

- c) Var det något i undervisningen som ni upplevde som obehägnat? Beskriv.
- d) Är det något som ni tycker varit svårt?
- e) Något som varit utmanande, roligt, lärorikt?
- f) Var något i undervisningen nytt för er? Vad?
- g) Hur kan ni ha nytta av det ni lärt er i vardagen?
- h) Är det något särskilt som ni har med er från undervisningen?
- i) Har ni några tankar om vad som skulle kunna göras annorlunda?
- j) Har ni några förslag på hur undervisning skulle kunna utformas på andra sätt?
- k) Hur skulle ni vilja vara med och påverka undervisningens utformning?

3. Är det något ytterligare ni vill lägga till?

4. Sammanfattning av elevernas erfarenheter och upplevelser, vilket ger dem möjlighet att rätta till eventuella missförstånd eller otydligheter.