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Diplomarbeit

Titel der Diplomarbeit

Sex Education in England.

A Case Study Approach about a Co-educational
Comprehensive School in Hounslow, West London

Verfasserin

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angestrebter akademischer Grad

Magistra der Naturwissenschaften (Mag. rer. nat.)

Wien, 2011

Studienkennzahl laut Studienblatt:

A 190 445 344

Studienrichtung laut Studienblatt:

Lehramt Biologie und Englisch

Betreuerin:

A.o. Univ.-Prof. MMag. Dr. Sylvia Kirchengast

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0. Dedication and Acknowledgement

This paper is dedicated to my dear parents Alois and Hermine Gmeiner.

First and foremost, I would like to thank my academic advisor Ms. A.o. Univ.-Prof. MMag. Dr. Sylvia Kirchengast for her moral and professional support. Her abundance of patience and helpful words of advice have contributed enormously to the successful outcome of my thesis.

I am indebted to Mr. Tom Carbro, Mr. Chris Walsgrove and many other teachers and students at the Heathland School who supported me in collecting data and allowed me to gain insight into everyday school life in England. It was a pleasure and unforgettable experience to be the Heathland's German language assistant for a period of eight wonderful months.

This thesis would not have been possible without the encouragement and moral support from my friends, flatmates, my sister Katharina and my brother Bernhard. I am grateful to be surrounded by such exceptional and dear people. Thank you for your patience, motivation and cheerful company in the last few years.

I owe my deepest gratitude to my parents who enabled me to study at the University of Vienna and unconditionally supported me during all these years in a number of ways. It is a pleasure to thank you, mum and dad, for your love, trust and belief in me.

1. Abstract

Sex education at schools has been a topic of constant controversial discussion for many decades. A number of studies focus on quality and extent of sex education in Austria, suggesting approaches and improvements of all kinds. Living in a globalized world, it seems natural to ask how sex education is carried out in other European countries. The reason why England has been chosen for this study is easily explained. The United Kingdom is the country with the highest teenage pregnancy rate in Western Europe. This trend has been observed for many years and could not be reversed so far. It goes without saying that sex education and teenage pregnancy are topically related. This thesis deals with sex education in England and focuses on students aged 11 to 16. The Heathland School in Hounslow, West London has been selected as case study for a common English comprehensive school.

The hypothesis was that sex education at schools in England is taught to a lesser extent than at schools in Austria. A three-part strategy was applied to answer a number of research questions and consequently finding arguments for and against the hypothesis. First, a comparison between the English and Austrian curriculum for sex education at secondary school stage was carried out. Contents, time devoted to sex education and obligation to follow that frame were of particular interest. Second, 14 sex education lessons were observed at the Heathland School and discussed. Third, 27 questionnaires for sex education teachers at the Heathland School have been created and were analysed with a focus on number of sex education lessons, subtopics covered and teachers' attitudes towards sex education.

The inter-curricula comparison revealed that in England, science and PSHE cover sex education collaboratively while only biology is responsible for it in Austria. Differences in the categorisation of age groups and subtopics assigned to forms became apparent. Some of the observations highlighted that sex education lessons in PSHE tend to be characterized by less professionalism than in science and drawbacks of PSHE were discussed. The questionnaires revealed that there are noticeable differences in teachers' attitudes towards sex education due to their subject. For example, almost half of the PSHE teachers of our sample felt challenged when teaching sex education and 36,8 % did not like teaching it while not a single science teacher agreed on either of these two statements.

Even though differences between the Austrian and English approach on sex education could be highlighted, it was not possible to prove that sex education is taught to a lesser extent in English than in Austrian schools. Consequently, the hypothesis needed to be rejected.

2. Introduction

The motive force for this thesis is the fact that England currently has the highest rate of teenage pregnancy within Europe. Thus, teenage pregnancy as such and in particular the situation in England is a prominent aspect of the *introduction*. As pregnancy cannot be dealt with taken out of context, basic information about human reproduction is presented first. To round off the theoretical part of this thesis, the system of education in the United Kingdom of Great Britain and Northern Ireland, with particular emphasis on sex education, is analysed as well as sex education according to the Austrian curriculum or Lehrplan.

Following the introduction, the hypothesis and several research questions will be presented in section 3 *Hypothesis and Research Questions*. Section 4 *Material and Methods* highlights the three-part strategy underlying this research paper. Firstly, the English and Austrian curricular are compared, secondly, several sex education lessons in an English school have been observed and thirdly, a questionnaire for teachers of sex education in England has been handed out. The results are presented in section 5 *Results* and analysed in section 6 *Discussion*. Answers to the research questions and arguments for or against the hypothesis are highlighted in section 7 *Conclusion*. Finally, section 9 *Appendix* contains an exemplary questionnaire handed out to science teachers at the Heathland School.

2.1. Human Reproduction

This section deals with the female and male reproductive system and the phenomenon of puberty as such. It summarizes the major stages from fertilization to birth and provides an overview of common contraceptive methods used in industrialised countries.

2.1.1. The Female Reproductive System

Following a classification of Jones and Lopez (2006), the female reproductive system consists of primary and secondary sexual characteristics. Firstly, primary sexual characteristics refer to the external genitalia and to internal structures of the reproductive system which are the paired ovaries, the paired oviducts, uterus and vagina. The latter three parts can be summed up under the umbrella term sex accessory ducts. Women's external genitalia are sometimes referred to as vulva and include the mons pubis, labia majora, labia minora, vaginal introitus, hymen, and clitoris. Secondly, female secondary sexual characteristics include external features of women

which help distinguishing adult females from adult males. The characteristic way of distribution of fat in the torso and enlarged breasts with their mammary glands are obvious and well-known female characteristics. All of these structures are necessary for human reproduction and have evolved to fulfil the following three main functions: 'the primary functions of ovulation, fertilization of an ovum by a sperm, and the birth and care of a newborn.' (Jones and Lopez, 2006)

LeVay and Valente (2003) draw attention to the differentiation between a woman's external genital anatomy or vulva and a woman's internal sex organs. According to them, the term vulva covers mons, outer and inner labia, vaginal opening and clitoris whereas a woman's internal sex organs are comprised of vagina, uterus, oviducts and ovaries. These female sexual characteristics are compendiously described now. Mons is short for mons pubis or mons veneris, whereby the latter means mountain of Venus. It is covered by skin and pubic hair and could be described as a pad of fatty tissue. There are various functions the mons is said to have such as acting as a cushion for the female pubic area during sex, transporting odours or even acting as a visual trigger for sexual arousal.

The outer labia, also called labia majora or outer lips, are padded with fatty tissue as well and are partially hairy. These two folds of skin which are often darker than the skin elsewhere can be found on either side of the vulva. Between the two outer labia there are the two inner labia, also referred to as labia minora or inner lips. They are two thin and hairless skin folds and sometimes only visible after parting the labia majora. The inner lips comprise a high number of nerve endings, blood vessels and glands. The place where the two labia minora meet at the front is called clitoral hood or clitoral prepuce and at the back they form the fourchette. By touching each other at the front and at the back, the inner lips enclose a potential space which is called vaginal, vulval or vulvar vestibule.

That vestibule includes the clitoris, the urethral opening and the vaginal opening. Only the clitoral glands of the clitoris are visible from the exterior while the rest of this complex organ remains hidden. A high number of sensory nerve fibres are located in the clitoris and in particular in its glands. These fibres are said to serve for the mediation of sexual arousal. Introitus is another expression for vaginal opening and can be found at the rear of the vestibule. Usually, young girls have a membranous fold of skin called hymen or maidenhead, which covers the introitus. However, the hymen might as well be absent or ruptured before a woman's first sexual intercourse. Finally, the urethral opening is needed to excrete urine. (LeVay and Valente, 2003)

The ovaries, vagina, uterus and oviducts belong to women's internal sex organs, whereby the latter three form the reproductive tract. This tract is crucial for reproduction as it is needed for transport of sperm and oocytes, fertilisation, pregnancy and childbirth. The vagina is a tube of 8-10 centimetres lengths, running backward from the vaginal opening. It mainly serves for sperm transport and is the birth canal for foetuses. The vagina is followed by the uterus or womb. This hollow organ is said to be similar in shape and size like a small reversed pear. The cervix is located at the narrow part of the uterus. The wall of the uterus consists of three layers named endometrium, which is the inner lining, myometrium, which is a muscular wall, and a thin peritoneal layer. The structure of the endometrium has to change regularly due to its different functions either over the menstrual cycle or during a potential pregnancy.

The oviducts are sometimes referred to as fallopian tubes or just tubes. They are two bilaterally symmetrical branches of about 10 centimetres lengths each. They connect the left or the right ovary with the uterus. Sperm coming from the uterus need to use that pathway for moving towards the ovaries and by doing so, carrying out fertilization in the oviducts. Women's gonads are called the ovaries. These ovoid structures are about 3 centimetres long and are located on the right and left side of the uterus. In a process called ovulation, oocytes are released from the ovary through the oviduct towards the uterus. Besides, the ovaries are also the site where sex hormones are produced and segregated. (LeVay and Valente, 2003)

Finally, the breasts and mammary glands should be mentioned as well because they are secondary sexual characteristics. They do not only have erotic significance but also fulfil reproductive functions such as secreting milk for newborns. (LeVay and Valente, 2003)

2.1.2. The Male Reproductive System

There are primary and secondary sexual characteristics describing the male reproductive system. Firstly, primary sexual characteristics are the testes, the male sex accessory ducts, the sex accessory glands and the external genitalia. Roughly speaking, sex accessory glands are necessary to subjoin substances to the ducts whereas sex accessory ducts have to receive, store and transport sperm. Secondly, male secondary sexual characteristics refer to features which help to differentiate between men and women in their outward appearance but do not include the external male genitalia. These secondary characteristics are for example differences in the muscular system, the voice, average body height or facial hair. (Jones and Lopez, 2006)

Having a closer look at male primary sexual characteristics, LeVay and Valente (2003) distinguish between external and internal genitalia. External sex organs include the penis, the scrotum and a pad of fat and pubic hair called prepubic fat pad which is similar to women's mons veneris. The penis is the most obvious male sex characteristic and needed for sexual excitation, excretion of urine and transport of gametes. So, it functionally combines elements of women's clitoris, urethra and vagina. A penis consists of its shaft, glans and foreskin, the latter of which covers the glans completely or partially. That loose, tubular fold of skin can be removed in a surgery called circumcision. Inside the penis, the urethra runs from the root of the penis to the tip of the glans. It transports urine from the bladder and semen from internal glands to the outside. Behind the penis, there is a loose and slightly hairy bag of skin called scrotum. That scrotal sac has got many sweat glands which help regulating the temperature of the two testicles it carries. (LeVay and Valente, 2003)

Internal male genitalia comprise of the testicles and various ducts or tubes and glands. Its overall functions are the production of sperm and the segregation of sex hormones. Testicles or testes are the male gonads and located in the scrotum. The testes have a twin ellipsoidal shape and are in most cases asymmetrical. Sperm leaves the testes through one of the two epididymides. The testicles and epididymides lie within the tunica vaginalis, a membranous sac, and can therefore be easily moved around inside the scrotal sac. The spermatic cord is the connection between the testes and organs in the abdominal cavity. Inside that cord runs the vas deferens. Its function is to transport mature sperm from the epididymides to the ejaculatory duct which leads on to the urethra and outside the body. Further important components of internal male genitalia are for example the prostate gland, the two seminal vesicles and the bulbourethral or Cowper's glands. (LeVay and Valente, 2003)

2.1.3. Puberty

Sexually immature children undergo a transitional phase called puberty or sexual maturation in order to reach the state of a reproductively fertile and sexually mature grown-up. There are various changes going on in adolescent human bodies, varying greatly between individuals in terms of age and extent. Table 1 provides typical sequences of pubertal change in boys and girls whereby average ages are used for the events described. Comparing the timing of specific pubertal changes, there is a wide range among individuals. These age deviations are

considered completely normal. Generally speaking, the pubertal sequence begins earlier in girls than in boys and, thus, is also completed earlier. Likewise, if puberty sets in earlier, it is supposed to be finished earlier. (Jones and Lopez, 2006)

Table 1 Typical Sequence of Events during Puberty in a Female and Male.
(Jones and Lopez, 2006)

Age	Female	Male	Age
9	Growth spurt begins, initial increase in height and fat deposition	Initial stages of spermatogenesis; Leydig cells appear and begin to secrete androgens	9
10	Initial breast development; pelvis widens; pubic hair begins to appear	Subcutaneous fat deposition increases; testes begin to enlarge	10
11	Maturation and growth of internal reproductive organs (ovaries, oviducts, uterus, vagina); maturation of external genitalia; areola becomes pigmented	Increase in scrotum and penis size; increase in spontaneous erection frequency; first signs of pubic hair; growth of seminal vesicles and prostate gland; skeletal growth spurt begins	11
12	Filling in of breasts; menarche; axillary hair appears	Pubic hair more apparent; nocturnal emissions begin	12
13	First ovulation occurs; skeletal growth rate declines; breast maturation complete; sweat and sebaceous gland development, sometimes with acne	Larynx growth and deepening of voice occur; hair appears in axilla and on upper lip	13
14	Voice deepens slightly	First fertile ejaculation; slight breast enlargement in some individuals	14
15	Adult stature reached	Adult hair pattern, including indentation in front hairline and appearance of chest hair; sweat and sebaceous glands develop, often with acne; loss of body fat occurs	15
		Broadening of shoulders; muscle growth and increased muscle strength	16
		Adult stature reached now or later	17

The most prominent sign for puberty in females is the menarche, the first menstruation. It occurs at an average age of 13 in the Northern Hemisphere like for example with 12.3 years in

the USA and with 13.6 years in England. 95 % of girls in industrialized countries experience the menarche between the ages of 11 and 15. Usually, a girl's first ovulation is some months after menarche but there are reported cases of exceptions.

Talking about boys, it is much harder to find a definite sign of puberty. On the one hand, a dramatic lowering of the voice due to a lengthening of the vocal cords in the larynx is said to be an obvious sign for puberty in males. On the other hand, further indications are also a boy's first ejaculations and more frequent nocturnal emissions enabled by growth and maturation of the testes and male sex accessory structures. However, there simply does not exist a comparably drastic and obvious sign in male, which is as easy to remember in terms of its first occurrence, as the female menarche. On average, boys reach adult stature and, thus, complete puberty 2 years later than girls. (Jones and Lopez, 2006)

2.1.4. From Conception to Birth

In the middle of a woman's menstrual cycle, an unfertilized ovum also called secondary oocyte is released from the ovary and transported through the oviduct towards the uterus. If sperm travelling from the vagina towards the oviduct meets up with that ovum in the oviduct within approximately 24 hours after ovulation, fertilization is possible. After the fusion of a single sperm with the plasma membrane of the ovum, it is impossible for any further sperm to enter the ovum. As soon as that sperm enters the ovum in a process called conception or fertilization, the fertilized ovum is referred to zygote. In complex processes of meiotic and mitotic divisions, the two different cells merge with each other and form a completely new and genetically unique two-celled organism named conceptus. (LeVay and Valente, 2003) This process of forming new life is described by Ellison (2001) in plain but beautiful words.

‘High in the fallopian tube of the mother, a new human genome has been formed. A single sperm from the father has managed to find the egg cell and [...] to inject the contents of its nucleus into the egg. [...]

From two human beings has been formed the beginning of a third, completely new, an individual that has never before existed and never will again. The drama of its life stretches away like a path with infinite twists and turns. But an immense amount of work must be done first to create a human being from this single cell.’

The conceptus carries out some more cell divisions in the oviduct and changes from its 2-cell stage via 4- and 8- to 16-cell stage. Being a compact mass of cells at 16-cell stage, the conceptus is called morula and transported into the uterus around the fourth day after ovulation. The previous morula is referred to as blastocyst at 32-cell stage. It sticks to the wall

of the uterus and is implanted in the endometrium on about the sixth day. For a successful implantation process, the hormones progesterone, estrogens, human chorionic gonadotropin (hCG) and luteinizing hormone (LH) play important roles. As implantation is a delicate and dangerous process for the blastocyst, pregnancy is usually said to begin after successful implantation rather than at conception. (LeVay and Valente, 2003) Table 2 sums up the usual timing of early events in pre-embryonic development.

Table 2 The usual timing of early events in pre-embryonic development
(Jones and Lopez, 2006)

Day	Event
0	Ovulation
1	Conception (fertilization)
3	Morula
4	Early blastocyst
5	Late blastocyst
6	Blastocyst sticks to endometrium
7	Implantation begins
8	Amniotic cavity and embryonic disc form
9	Uterine sinusoids develop
10	Implantation complete
15	First missed menses (positive pregnancy test)

The embryonic phase begins about 15 days after conception and continues for 7 weeks. The previous blastocyst, from then on called embryo, consists of three cell layers which are ectoderm, mesoderm and endoderm. These layers will later on give rise to different body parts and structures and are essential for the development of a placenta and umbilical cord. Within 5 weeks of embryonic phase, the embryo is growing 2-3 centimetres and already looks similar to a human being, possessing all major human organ systems. The embryo is referred to as a fetus or foetus from about 7 weeks after conception. Fetal development is characterised by growth and functional maturation of its body systems. A fetus already moves, kicks and might put a thumb in its mouth. Pregnancy in the Northern Hemisphere usually lasts between 269 and 274 days, whereas women who have given birth before are said to have a slightly shorter duration of gestation. The figure given for pregnancy worldwide is 266 days. Roughly speaking, about 9 months after conception, giving birth occurs. (LeVay and Valente, 2003)

2.1.5. Contraception

Progress in reproductive research and medicine has enabled potentially fertile male and female human beings to have sexual intercourse with each other without the female getting pregnant. Nowadays, many contraceptive methods are available to prevent gestation and some of them even protect humans from passing on of sexually transmitted diseases, STD for short. Jones and Lopez (2006, 386 ff) name a number of common contraceptive methods. These methods are characterised by differences in usage, mechanisms of action, failure rate and general advantages and disadvantages. Apart from tubal sterilization, the combination pill and the condom are the most popular contraceptive methods in industrialised countries. Therefore, these two methods will be described in brief after the enumeration of further contraceptive means.

- Combination pill (estrogen and progestogen)
- Minipill (progestogen)
- Intra dermal progestogen implant
- Progestogen injections
- Estrogen + progestogen injections
- Postcoital estrogen pill = emergency contraception or ‘morning-after pill’
- Barrier male condom (no spermicide)
- Male condom (with spermicide)
- Female condom (with spermicide)
- Diaphragm (with spermicide)
- Cervical cap (with spermicide)
- Sponge contraceptive (with spermicide)
- Intrauterine device = IUD
- Spermicides alone (foam; cream; jelly; suppositories; film)
- Surgical tubal ligation, tubal sterilization
- Vasectomy
- Hysterectomy (considered inadvisable now)
- Natural family planning (calendar method; basal body temperature method; cervical mucus method; symptom-thermal method;)
- Withdrawal (coitus interruptus)
- Breast-feeding

The combination pill includes the hormones estrogen and progestogen. Usually, fertile women who are not using any hormonal contraceptive methods experience an ovulation in the middle of most of their menstrual cycles. Taking the combination pill, however, has drastic effects on that cycle. Tertiary ovarian follicle growth is inhibited and both, follicle-stimulating hormone or FSH and luteinizing hormone or LH are prevented from their surge. Thus, ovulation is prohibited and conception does not occur. If ovulation happened yet, the pill would make the cervical mucus too hostile for successful sperm transport. Besides, even if fertilization as such took place, implantation of the embryo in the uterine endometrium would be impossible because of the unfavourably estrogen to progestogen ratio. Summing it up, the combination pill prevents not only ovulation but also conception and implantation. Therefore, it is considered a very effective contraceptive method, given it is used correctly. However, the pill does not give any protection from sexually transmitted diseases.

The condom for males does not only prevent pregnancy but also protects from STDs. By placing a condom over the erect penis before coitus, semen is prevented from entering the vagina. Condoms are usually made of polyurethane plastic or sheaths of latex rubber. Their failure rate is higher than hormonal contraceptives such as the combination pill because they can develop cracks or holes if kept for too long or at too high temperatures. The usage of a spermicide in addition to a condom reduces the failure rate enormously. People might find condoms uncomplicated and useful because they are easily accessible without prescription, cheap and only need to be used when actually having sexual intercourse. (Jones and Lopez, 2006)

2.2. Teenage Pregnancy

The rising number in teenage pregnancies is a worldwide phenomenon and continuous subject of controversial public discussion. Some countries successfully introduced methods to reduce teenage pregnancy rate whereas others are still struggling. Chen et al (2006) present three main reasons for an increasing number of very young mothers. First, the age at menarche in the United States and many European countries declines at a rate of 2-3 months per decade. This trend called secular acceleration has been observed since the 19th century. Second, studies in US high schools reveal that adolescents perform their first sexual activity at a much younger age than it used to be. This finding can also be conveyed to the situation in Europe. Third, the use rate of contraception is still very low. Despite a global increase in knowledge and use of contraception, many teenagers have none or inadequate protection when starting their sexual lives. So, an increased rate of global teenage pregnancy rates comes as no surprise. The risks of teenage pregnancies in industrialized countries are discussed in the following subsection. Afterwards, the situation in England is highlighted because the focus of this thesis is on that nation. But prior to that, the age of teenage mothers needs to be defined.

It is not easy to draw an exact line up to what age a young pregnant female could be regarded as teenage mother. In their State of the World's Children report, UNICEF (2009) mention the age group of 15 – 19 year-old girls but also highlight that there are even younger mothers. Robson and Pevalin (2007) agree on the upper age level when claiming that young parenthood refers to 'men and women who enter parenthood before 20'. Further sources use the terms adolescent or teenage pregnancies when referring to the ages of 14 to 19 (Bishop 2007, Khashan et al 2010). In this paper the term teenage mother is used for females who give birth at the ages of 15 to 19 and thus, conceived when aged 14 to 19 years.

2.2.1. Risks of Teenage Pregnancy

It is a well-known fact that the frequency of ovulation begins to decline around the mid-thirties and, thus, female fecundity is reduced at older ages. (Ellison, 1996) Given that many industrialized countries complain about a general decline in their birth rates, one might ask why teenage pregnancies are considered as something negative, dangerous or even worth to fight instead of encouraging young girls to get pregnant for the sake of a raise in their country's birth rate. Why is gestation as such or giving birth supposed to be more dangerous for very young mothers than for women in their twenties or thirties? This question needs to be

analysed from two different angles. First, there are dangers affecting the mother's and newborn's health which seems to prevail in less developed countries but are also apparent in deprived areas in industrialised countries. In severe cases, these physiological drawbacks might lead to the death of the infant or mother, or even of both. Second, there are many social and financial problems or further stigmata affecting teenage mothers and their surroundings. In any case, one cannot deny that a number of disadvantages and dangers lie ahead of young mothers and their infants. These dangers differ enormously depending on the home country and resources of the young parents. As claimed in UNICEF's (2009) latest State of the World's Children report on maternal and newborn health,

‘women in the world's least developed countries are 300 times more likely to die during childbirth or because of their pregnancy than those in the UK and other similarly developed countries’. (Boseley Sarah, The Guardian online)

This shocking figure does not differentiate between teenage and adult mothers. Besides, young mothers in Africa or Asia usually suffer from a lack of basic needs like clean water, food or medical treatment which makes pregnancies dangerous at any age of the mother. Low birth weight due to preterm delivery or intrauterine growth restriction is very common in such poor areas and causes 60 – 80 per cent of neonatal deaths. Focusing on teenage mothers, UNICEF (2009) presents another alarming number in their report:

‘Maternal deaths related to pregnancy and childbirth are an important cause of mortality for girls aged 15–19 worldwide, accounting for 70,000 deaths each year.’

The statement above seems shocking at first but needs to be taken with caution because young women from different countries and backgrounds were included in the study. In many cases, not only young age as such but also accompanying disadvantages such as poverty or bad physical condition play an enormous role. It would go beyond the scope of this paper to present and discuss the dramatic situation in developing countries. So, this section clearly focuses on potential health and social problems of teenage pregnancies compared to adult pregnancies in industrial states.

To start with, Khashan et al (2010) compared young mothers aged 14-17 and 18-19 years with a reference group aged 20-29 years. They found that young females are more likely to have preterm delivery. Interestingly, if the young mother gets pregnant again while still being in her teens, the risk of preterm birth is further increased. Many studies highlight a relationship between reduced birth weight or small for gestational age (SGA) and maternal age. However, Khashan et al (2010) found only little evidence for that common assumption.

Besides, an association between young maternal age and neonatal mortality or congenital anomalies has been established in some studies while others do not support this assumption. As one quickly realizes, lots of controversies can be found in the research on teenage pregnancies. It is more than likely that the different results were achieved due to variation in focus of studies, material and methods used, the test persons themselves as well as their different social and physiological backgrounds. Thus, studies including a high number of test persons often prove useful. Chen et al (2007) carried out a large-scale cohort study and ended up with similar results like Khashan et al (2010). They concluded that the risk for preterm delivery, low birth weight (LBW), neonatal mortality and SGA were increased in babies born to teenage mothers.

It is a widely accepted opinion that negative outcomes in teenage pregnancies and low socio-economic status combined with inadequate prenatal care and inadequate weight gain during pregnancy correlate. Chen et al (2007) challenge that assumption by restricting their test people to white married teenage mothers who do not come from a deprived socio-economic background. Their education level is appropriate, sufficient prenatal care exists and alcohol or cigarettes are not consumed during pregnancy. Finally, these pregnancies were associated with the same adverse birth outcomes such as preterm delivery or LBW. So, one can conclude that adverse perinatal outcomes teenage pregnancies are not solely caused by socio-economic factors but that the young age of the mother plays an enormous role, as well.

Taking these physiological disadvantages of an early pregnancy into account, one cannot help but ask why teenage mothers are more likely to experience adverse birth outcomes. Starting off with an anatomical point of view, it is a basic assumption that adolescent mothers usually have a narrower pelvic and less body fat than adults. (UNICEF, 2009) It goes without saying that a narrow pelvis makes human births even harder than they already are. Likewise, less maternal body fat is associated with the question of whether the foetus gets enough nutrients or not. Khashan et al (2010) suggest that among other reasons, gynaecological immaturity as well as the growth and nutritional status of the teenage mother might be reasons for adverse pregnancy outcome. As the adolescent mother herself is still growing, she and her foetus might start competing for nutrients which could lead to reduced birth weight and SGA. Using simple words, poor pregnancy outcome might also be caused by biological immaturity of the young mother. (Khashan et al, 2010) Chen et al (2007) agree on the assumption that an adolescent mother who is still growing herself might compete with the foetus for nutrients. According to them, weight gain during pregnancy is more critical for adolescent mothers than for adults. Chen et al (2007) agree with Khashan et al (2010) when

young gynaecological age is considered to be one reason among others for adverse birth outcomes in teenage pregnancies. They add the immaturity of the uterine or cervical blood supply as further possible reasons.

Swann (2003) names further common disadvantages of young parenthood.

‘[...] teenage pregnancy and early motherhood can be associated with poor educational achievement, poor physical and mental health, social isolation, poverty and related factors. There is also a growing recognition that socio-economic disadvantage can be both a cause and a consequence of teenage parenthood.’ Swann (2003)

Likewise, Bishop (2009) sums up that teenage pregnancy and childbirth are associated ‘with detrimental physical consequences and long-term negative psychosocial outcomes for both mother and child’. Apart from adverse birth outcomes described above, infants born to teenage mothers are more likely to experience long-term negative effects. These are for example inferior cognitive development and lower educational achievements, behavioural problems or physical disadvantages such as poor nutrition, neglect and abandonment. Young mothers are still cognitively immature and might suffer a developmental crisis when getting pregnant, or deciding to abort. Teenage mothers are also more prone to negative public attention, poverty or poor performance in education and employment. They are more likely to suffer from mental health problems or physical abuse, to name just a few. (Bishop, 2009)

There is a vast number of studies which highlight the association between teenage mothers and socio-economic deprivation. It is often claimed that due to their low socio-economic status, very young mothers are more likely to have poor diet or even smoke and consume alcoholic drinks. (Khashan et al, 2010) It goes without saying that these factors most probably have negative effects on the development of the unborn child. Robson and Pevalin (2007) discuss the socio-economic component of young parenthood in Great Britain. Their findings confirm that

‘young parents tend to come from poorer socio-economic backgrounds, “broken homes”, larger families, and themselves have mothers whose first birth was at a young age. (Robson and Pevalin 2007)

They add that young parenthood is associated with socio-economical disadvantages in later life such as a higher probability of single parenthood, receipt of benefit and less wage and property-ownership. Likewise Johns (2010) highlights a correlation between young motherhood and area of residence. She assumes that young parenthood is more likely in deprived neighbourhoods, due to low socio-economic status. In England, adolescent pregnancy rates are highest in urban environments, ports and in industrial and mining areas.

(Johns, 2010) Similarly, Wilkinson et al (2006) confirm that most teenage conceptions in England occur in areas characterised by high social and material deprivation and in socioeconomically disadvantaged groups.

It is a frequent assumption that children of very young parents and broken homes are at higher risk of getting in trouble at school than those from parents of higher age and more stable family lives. Robson and Pevalin (2007) assume that behavioural problems in childhood might lead on to increased sexual risk-taking in adolescence and, as a result, a higher possibility of getting pregnant at a young age. So, the cycle of social disadvantage is closed again and the impact of social position origin on later life becomes obvious. The unanswered question remains whether an early pregnancy is cause or outcome of a poor socio-economic background. (Robson and Pevalin, 2007) Do teenage mothers in western societies have a low status because of the early pregnancy or is the early pregnancy a result of their low status and the deprived environment in which they have been living all their lives? Finally, Bishop (2009) finds similar words for the reciprocity between cause and reason.

‘There has been ongoing debate about whether these psychosocial and health disadvantages arise from pre-existing socio-economic environments or whether it is the young age of the teenage mother herself that exacerbates these inequalities.’ (Bishop, 2009)

2.2.2. Teenage Pregnancy in the UK

The United Kingdom is said to be the country with the highest rate of teenage pregnancies in Western Europe. This trend has been observed for many years. Image 2 (UNICEF, 2001) shows the number of births by women aged 15 to 19 per 1000 births in 28 nations of the industrialized world in 1998.

More than a decade ago, the United Kingdom already dominated among western European countries with 30.8 births to women aged below 20 per 1000 compared to an average teenage pregnancy rate of 14 in Austria and a very low rate of 5.5 in Switzerland. The USA scored even higher with a shocking number of 52.1 births. The situation looks even more dramatic when dealing with teenage conception rates instead of birth rates. England’s under-18 conception rate peaked in 1998 at 44.3 conceptions per 1000 women. In 1994-1998, an abortion rate of 18 per 1000 still lead to an incredibly high birth rate of 26.4 per 1000 for adolescent mothers. It goes without saying that these high figures asserted pressure on the government. (Wilkinson et al, 2006)

Figure 1 The teenage birth league (UNICEF, 2001)



As a result, the 10-year national teenage pregnancy strategy for England was developed and introduced in 1999. Its twofold aim was ambitious. First, the rate of teenage conceptions should be halved by 2010. Second, social exclusion of adolescent parents should be lessened by improving their opportunities for education, training and employment. Five years after implementation of England's teenage pregnancy strategy, Wilkinson et al (2006)

presented a decline in adolescent conceptions. For the first time in two decades, an overall fall in teenage pregnancy rate could be observed in England. London, however, showed particularly bad results with no appreciable fall in rates or even a rise in some areas. Adolescent conception rate definitely needs to fall faster in the following 5 years in order to reach the aim of halving it by 2010. Having a look at the actual figures for 1999-2003, the number of teenage conceptions declined by 3.2 % and birth rate fell by even 10.6 %. Abortion rate in adolescent women rose by 7.5 % but is still lower in England than in most other European countries. Interestingly, the effect of national teenage pregnancy strategy has been greater in deprived and more rural areas characterised by lower educational achievement than in more affluent regions. The reasons for that phenomenon are not fully clarified, yet. As a matter of fact, contraceptive services were poorer in deprived areas than in affluent regions before implementing the strategy. So, one could argue that the national teenage pregnancy strategy helped deprived areas above average to improve their contraceptive services and number of useful resources. (Wilkinson et al, 2006)

For the time being, the final results and a detailed discussion of the strategy have not been published, yet. One can assume that the strategy-related effect observed in 1999-2003 continues and that the general tendency in England finally goes towards less teenage conceptions. However, the target of halving teenage conceptions by 2010 will most likely be missed. It comes as no surprise that a failure in that ambitious target is heavily criticised among the English population. An article in the telegraph (telegraph view, 2009) vents people's displeasure.

'More than 12 years after this strategy was launched, and despite the expenditure of many millions of pounds, the UK still has the worst teenage pregnancy problem in western Europe. Any parent could have told ministers that bringing children into contact with what the study calls "risky peers" might have the opposite effect to that intended.

This approach undermines any attempt by parents to discourage their children from having early sexual relationships, and the consequences have been all too predictable. Yet any suggestion that a moral dimension, or the virtues of abstinence, might be included in sex education classes is derided by those who think they know better – but who have been shown by the failure of their policy to know very little indeed.'

(telegraph view, 2009)

It stands to reason that many English citizens are frustrated because the ultimate aim of an expensive governmental programme could not be reached by now. However, one should not overlook that at least some success could be achieved. Johns (2010) refers to data taken in England and Wales in May 2010 when stating that the rate of adolescent conceptions has

declined steadily since 1998. But she also admits that the decrease is only a small one because the conception rate in Great Britain is still higher than 40 in 1000. Putting conception rates aside for the moment, what do the latest figures on actual births by teenage mothers in England tell us?

The most recent figures on estimated adolescent fertility are presented by World Health Statistics (WHO, 2010) and defined ‘as the number of births among girls aged 15-19 years per 1000 girls in this age group per year’. The figures are compiled from the latest available data since 2000 for the respective WHO region. Relevant extracts of that global data are summed up in table 3 below with a focus on Western European countries.

Table 3 Adolescent fertility rate (per 1000 girls aged 15-19)
World Health Statistics (WHO, 2010)

Country	Adolescent fertility rate
Niger	199
USA	41
Romania	35
New Zealand	29
United Kingdom	26
Slovakia	21
Hungary	20
Estonia	20
Portugal	17
Ireland	17
Australia	15
Iceland	14
Canada	14
Poland	13
Croatia	13
Spain	12
Austria	12
Greece	11
Czech Republic	11
Luxembourg	10
Germany	10
Norway	9
Finland	9
France	8
Italy	7
Sweden	6
Denmark	6
Switzerland	4
Netherlands	4

Niger, USA, New Zealand, Australia and Canada have been included in order to provide a better survey. Niger, representing the dramatic situation in developing countries, has a shockingly high rate of 199 per 1000 girls. The United States of America have the highest teenage pregnancy rate in industrialized countries with 41 per 1000. Within Europe, the Eastern European country Romania takes the lead with 35 per 1000. Despite the rate in the United Kingdom fell from 30.8 (UNICEF, 2001) to 26, the UK still has the highest adolescent fertility rate in Western Europe. Austria can said to be placed in the European average with 12 per 1000 while the Netherlands and Switzerland have a particular low rate of teenage births with only 4 per 1000. (WHO, 2010)

Why has the UK been characterized with a high rate of teenage pregnancies for many years and still is? Usual reasons such as increased sex and sexual references in the media, the sexualisation of the youth and free access to the internet are similar across Europe. Why does, compared to other European countries, the UK in particular have problems in the area of young parenthood? In his article in the telegraph, Pemberton (2009) tries to answer these questions. He identifies two main causes why the UK bears the title of teenage pregnancy capital of Europe, namely prudishness and a rigid class structure. First, the English are said to be more embarrassed when referring to sex than other Europeans and prefer to avoid the subject matter with their children. So, parents favour the state to give moral and informational guidance on sex education rather than doing it themselves. Second, the British are still bound by class to a greater extent than people in the rest of Europe. The likelihood for working-class girls to become pregnant in their teens is 10 times higher than for middle-class girls. Pemberton (2009) continues to argue that having a baby gives girls from disadvantaged backgrounds access to council flats and state benefits. Besides, if one girl in a clique gets pregnant, her friends notice a new meaning in her life and a raise in status. In many cases, it does not take long until they follow her example. Rhiannon works in a unit for teenage mothers and describes the domino effect of getting pregnant.

"It's perfectly normal to have a child when you're 15 or 16," said Rhiannon, "that's what these girls think. For them it's not a big deal. That's the problem. It's almost infectious," continued Rhiannon, "one girl gets pregnant and then over the course of a few months, all her friends fall pregnant, too. By the time they get to see me, it's too late to do anything to change things," she added with a shrug of resignation. (Pemberton in the telegraph online, 2009)

Pemberton (2009) moved English society in the centre of his attention when looking for reasons for the consistently high teenage pregnancy rate. Wilkinson et al (2006) try to find the answer in the past. They assume that in the 1970s, other European countries managed to

reduce their teenage pregnancy rate enormously whereas England simply failed to sustain declines. So, the high adolescent fertility rate in the UK of these days could be seen as a consequence of the failure to implement tighter measures in the past.

The approach of this thesis is a different one. It neither provides an analysis of the English class system nor blames the current government and its policy for the high rate of teenage pregnancies. The basic assumption is that sex education is taught to a lesser extent in English schools than in Austria. Consequently, a connection between the high rate of teenage pregnancies in England and less sex education in schools might be drawn. The national curriculum for sex education and some observed lessons carried out in an English comprehensive school will be analysed and compared with the situation in Austria. More information about this approach will be presented in the following sections.

2.3. Sex Education

To start with, this section includes a brief overview about sex education in Austrian schools according to the national curriculum or Lehrplan for the subject biology. The system of education in the United Kingdom of Great Britain and Ireland is described afterwards. Besides, a survey about sex education in England according to the national curriculum for the UK is provided. In addition a case study is included in order to exemplify how an average English comprehensive school could apply the national curriculum in practise. The school in question is located in West London and named the Heathland School.

2.3.1. Sex Education in Austria

Before having a closer look at sex education in Austrian schools, one needs to have a rough idea about the complex system of education in that country. For the purpose of this paper, age groups 10 – 14 and 14 – 18 are of particular interest and will be dealt with in more detail.

In cooperation with the Federal Ministry for Science and Research, the Federal Ministry for Education, the Arts and Culture published a document named ‘Development of Education in Austria 2004 – 2007’ which describes the Austrian educational system. According to this document, compulsory school attendance for all children starts at the age of 6 in primary school and ends at the age of 15 which makes 9 years of compulsory education at various schools. In addition, 90 per cent of all children aged 3 – 6 make use of their option to go to kindergarten as a form of pre-primary education. Compulsory education starts at primary school for children aged 6 - 10. There are two main options how to continue one’s school career. 10 or 11 year-old pupils can either attend academic secondary school first stage (AHS Unterstufe) or lower secondary school (Hauptschule). At the age of 14, the moment of decision for a type of secondary school arrives. As compulsory education continues till the age of 15, 14-year-old students can either just add one more year and then leave school for good or decide to continue their education in another school. The four different options for students aged 14 – 18 or 19 are listed below.

- Academic secondary school second stage, 4 years (AHS Oberstufe)
- Higher technical and vocational college, 5 years (for example HAK, HTL, HLW)
- Intermediate technical and vocational school, up to 4 years (for example HAS)
- Pre-vocational year, 1 year + vocational school for apprentices, up to 4 years (for example Polytechnische Schule + Berufsschule)

The first two possibilities of the four listed above include graduation with a certificate called Matura. The Austrian Matura or German Abitur serves similarly as the English A-levels as qualification for University entrance. Afterwards, students who do not pursue a profession have a lot of options such as Bachelor, Master, Doctoral and Diploma programmes, University courses and many more specific colleges and schools.

The Lehrplan can be described as a national curriculum which is compulsory for Austrian state schools. It is relevant for the respective type of school and regulates which key topics of various subjects should be taught at what age. For the sake of this paper there are two different curricula which will be dealt with now. Firstly, the curriculum for academic secondary school first stage affects students aged 10 – 14 who are attending AHS-Unterstufe and is called Lehrplan der AHS Unterstufe. Secondly, the curriculum for academic secondary school second stage or Grammar School has been developed for 14 – 18 year old students and is referred to as Lehrplan der AHS Oberstufe. The focus of the following analysis is solely on the topic sex education, which is included in the subject biology. (BMUKK, Development of Education in Austria, online)

2.3.1.1. Biology at the AHS-Unterstufe

The Lehrplan for academic secondary school first stage or AHS-Unterstufe states that the subject biology has to be taught in each of the four school years. The annual programme is structured along the same three main sections which are called humans and health (Mensch und Gesundheit), animals and plants (Tiere und Pflanzen) and ecology and environment (Ökologie und Umwelt). Section humans and health sets itself a target to be reached by the end of year 4:

According to their age, students at the end of their fourth year should have gained a survey of anatomy and function of the human body parts. In addition to the encouragement of an understanding for one's own body and broad health consciousness, sex education, which is oriented on the students themselves, shall be brought into action.

(Original text BMUKK Lehrpläne, online: „Am Ende der 4. Klasse sollen die Schülerinnen und Schüler einen altersgemäßen Überblick über Bau und Funktionen des menschlichen Körpers besitzen. Neben der Förderung des Verständnisses für den eigenen Körper sowie eines umfassenden Gesundheitsbewusstseins soll eine an den Schülerinnen und Schülern orientierte Sexualerziehung zum Tragen kommen.“)

In order to reach that aim, several smaller aspects of sex education need to be brought together. Considering the interests of adolescents in their first year of AHS-Unterstufe, these 10 or 11 year-old pupils shall be taught about the following topics of sex education:

- Anatomy and function of reproductive organs
- Menstruation, conception, pregnancy and giving birth
- Physical and psychical development and sensitivities during puberty
- Informing about sexual abuse and prophylaxis

(Original text BMUKK Lehrpläne, online: ‚Unter Einbeziehung der Interessen der Schülerinnen und Schüler sind folgende Themen zu behandeln: Bau und Funktion der Geschlechtsorgane, Menstruation, Empfängnis, Schwangerschaft und Geburt, körperliche, psychische Entwicklung und Befindlichkeit in der Pubertät, Aufklärung über sexuellen Missbrauch/Prophylaxe.‘)

In addition, students aged 13 or 14 who are in their fourth and last year of AHS-Unterstufe will be dealing with sex education again. Taking their interests into account, the Lehrplan highlights the following topics:

- Sexuality as a biological, psychological and social phenomenon
- Contraception and pregnancy
- AIDS prophylaxis

(Original text BMUKK Lehrpläne, online: ‚Unter Einbeziehung der Interessen der Schülerinnen und Schüler sind folgende Themen zu behandeln: Sexualität als biologisches, psychologisches und soziales Phänomen, Empfängnisregelung, Schwangerschaft, Geburt; AIDS-Prophylaxe.‘)

Obviously, sex education is a main component of the Lehrplan for biology at the level of academic secondary school first stage. It is clearly stated which topics have to be dealt with in the first and last year of AHS Unterstufe. In addition, teachers are reminded to also bear the individual interests of their students in mind. Hence, the aspects of sex education which have to be included in biology at AHS-Unterstufe level are described very well.

2.3.1.2. *Biology at the AHS-Oberstufe*

The Lehrplan for AHS-Oberstufe is compulsory for academic secondary school second stage, also called Grammar School. Pupils in year 5 are 14 years old whereas year 8 students are 18 or 19 years old. For each of these four years, the Lehrplan for biology is divided into four sections which. These sections are named humans and health (Mensch und Gesundheit), understanding of the world and realization of nature (Weltverständnis und Naturerkenntnis),

ecology and environment (Ökologie und Umwelt) and biology and production (Biologie und Produktion). The first section includes sex education and should be taught to 15 year-old students in year 6. The Lehrplan emphasises that the following targets should be achieved:

To deepen an understanding of sexuality as a biological, psychological and social phenomenon and to encourage a responsible way of dealing with sexuality (sexual ethics); to gain knowledge about possibilities of reproductive manipulation and human embryonic development; to gain insight into the basic function of the immune system and recognise disorders (allergies, HIV)

(Original text BMUKK Lehrpläne, online: ‚Verständnis von Sexualität als biologisches, psychologisches und soziales Phänomen vertiefen und zu einem verantwortungsbewussten Umgang mit Sexualität anregen (Sexualethik); Wissen über Möglichkeiten der Fortpflanzungsmanipulationen und über die Embryonalentwicklung beim Menschen erwerben; Einblicke in die grundlegende Funktionsweise des Immunsystems gewinnen und die Auswirkungen von Störungen erkennen (Allergien, AIDS ua.)‘

According to the Lehrplan for biology at the level of academic secondary school second stage, year 6 is the only year in which sex education is mentioned most explicitly. In addition, year 8 students should get an insight into research foci of modern life sciences such as stem cell research or new reproductive methods. (Original text BMUKK Lehrpläne online: ‚Einblicke in Forschungsschwerpunkte der modernen Biowissenschaften (Stammzellenforschung, neue Reproduktionsmethoden usw.)‘)

Summing this section up, sex education in Austrian state schools is compulsory in year 1, 4 and 6 of academic secondary schools which means for students aged 10 or 11, 13 or 14 and 15 or 16. Year 8 students might get an insight into new reproductive methods, as well. The topics which have to be dealt with in biology for the respective age group are explicitly stated in the Lehrplan. There are, however, no regulations about intensity and amount of time spent on various issues. Obviously, this is the only deficiency of an otherwise well organised and clearly structured document. Thus, it comes as no surprise to state that the Austrian Lehrplan is a profound guiding principle for biology teachers.

Before finishing the topic sex education in Austria an afterthought about teachers of sex education is added. In many cases the person teaching sex education is the biology teacher but there are also other options. Extern teaching staff who are specialized in sex education could be invited or students could attend workshops for sex education. In her thesis, Rammel (2009) highlights the advantages of extern sex pedagogues. She claims that students can and should talk more openly and without taboos about sexuality with extern staff than with the regular biology teacher. Sex pedagogues are specifically educated to convey aspects of sex

education on a friendlier and closer level. Besides, there are often one male and one female pedagogue which gives students the choice who to approach for different kinds of questions. Lastly and most importantly, students appreciate the feeling of anonymity when discussing delicate issues with external sex pedagogues.

2.3.2. The System of Education in the United Kingdom

It can be imagined that the English school system is quite different from the Austrian one. Thus, one should have a rough idea about the English school system as such before having a closer look at sex education and the school subjects in which it is taught.

First of all, there is no such thing as a unified school system in the United Kingdom of Great Britain and Northern Ireland, briefly worded UK. Northern Ireland, Scotland and the Republic of Ireland have their own systems of education whereas England and Wales are treated together for most purposes, except for the school subject Welsh. All children in the UK aged between 5 and 16 have to either attend school or receive any other kind of full-time education, for example being taught at home by their parents. With a percentage of more than 90, the vast majority of UK school children attend state schools while less than 10 % decide to attend so-called independent or private schools and in doing so, usually have to pay school fee. To make English school terminology even more confusing, the term public school is used for some very famous independent schools such as Eton or Winchester. Thus, talking about a public school in the UK does not mean a state school for the public, free of school fee, but a highly esteemed private school. State schools have to follow the national curriculum whereas independent or public schools do not have to adhere to it. (Thomas, 2009) The national curriculum is organised along four key stages which are highlighted on its official website:

- ‘Key stage 1: Ages 5-7 (Years 1-2)
- Key stage 2: Ages 7-11 (Years 3-6)
- Key stage 3: Ages 11-14 (Years 7-9)
- Key stage 4: Ages 14-16 (Years 10-11)’

Key stages 1 and 2 are covered by the primary curriculum whereas key stages 3 and 4 belong to the secondary curriculum. For an analysis of sex education in England to be carried out in the next subsection 2.3.3., the focus will solely be on key stages 3 and 4. It would go beyond the scope of this thesis to include primary curriculum. Besides, most teenage pregnancies do not occur before the age of 11. Thus, this section solely covers secondary curriculum.

As mentioned above, compulsory education starts at the age of 5 in primary school. Younger children might attend pre-school or nursery school. Secondary schools are attended by children at the age of 11 until 16 or 18 and can be divided into two big groups. On the one hand, there are comprehensive schools which can be attended by all the children in the area, not taking factors such as skills or special needs into account. On the other hand, there are so-called grammar schools which usually attract children of higher ability or aptitude, which is, however, not more than a third of the population. In addition, a high number of state secondary schools are specialised in various fields of study such as languages, information and communication technology (ICT) or science. On a secondary school level, a school year normally consists of three terms called autumn, spring and summer term. All three of them are divided into two halves by one week of half-term-holidays and separated from each other by Christmas, Easter or summer holidays. (Thomas, 2009)

There are also huge assessment differences between the Austrian and English system of education. At the ages of 7, 11 and 14, every child in England has to be tested in the core subjects English, mathematics and science. These national tests are referred to as standard assessment tasks, in short SATs. Furthermore, students in their years 10 and 11, which means aged 14 to 16, take examinations at the level of GCSE. That single-subject examination set is usually regarded as crucial for the pupils' further educational careers. On their website, Directgov (DOR: 22.10.2010) explain that

‘GCSE stands for General Certificate of Secondary Education. It's highly valued by schools, colleges and employers [...] The qualification mainly involves studying the theory of a subject, combined with some investigative work. Some subjects also involve practical work. GCSEs are usually studied full-time at school or college, taking five terms to complete.’

After their GCSEs, students in the UK can choose between various options. They are free to leave secondary schooling, might choose a vocational or technical college or decide to stay at their school for one or two more years. The latter option means taking AS-levels after one more year or A-level after two more years of studying. Pupils who stay in their secondary school for these advanced level examinations are referred to as 6th formers. In passing the A-level, they are allowed University entrance. Thus, A-level could be compared with the Austrian Matura or German Abitur.

Finally, state schools in England and Wales are being inspected on a regular basis by the Office for Standards in Education, in short OFSTED. Describing themselves on their website and simultaneously addressing parents, OFSTED (DOR: 22.10.2010) points out that

‘we will report fairly and truthfully; we will listen to service users and providers; and we will communicate our findings with all who share our vision, from service providers to policy-makers. We do not report to government ministers but directly to Parliament. This independence means you can rely on us for impartial information.’

OFSTED reports are made public and have an enormous influence on number of students and consequently on school budget. In the United Kingdom, schools, and in particular private schools, are much more autonomous than in Austria and also need to deal with their financial situations on a more independent level.

2.3.3. Sex Education in England

The Qualifications and Curriculum Development Agency, in short QCDA, published the national curriculum for England in 2007. It is sometimes also referred to as Qualifications and Curriculum Authority, conform to QCA. This section deals with an analysis of the secondary curriculum for key stages 3 and 4. The primary curriculum for key stages 1 and 2 is neglected because it is not relevant for the focus of this paper.

The purpose of this analysis is to find out in which subjects, to what extent and at what age sex education should be taught at English state schools. The two key subjects for sex education are science and PSHE. Science is a subject which combines chemistry, physics and biology. The national curriculum for science is compulsory in Wales and England. It is, however, said to be very vague and to a big part up to the teachers how much of what they teach. PSHE is a common abbreviation for personal, social, health and economic education and is based on a non-statutory programme of study. This means that schools are not obligated to follow these national guidelines because they are just recommendations but not established by law.

Furthermore, the subject religious education, in short RE, is not taken into account for the purpose of this research because the content of its curriculum is rather vague and there are many children who opt out or choose alternative subjects. Besides, even though RE is a statutory subject, its programme of study is a non-statutory one which means that it is, likewise PSHE, not legally bound. (National Curriculum, DOR: 22.10.2010)

2.3.3.1. Science at Key Stage 3

Having a closer look at range and contents of science at key stage 3 it turns out that there are four main topics for students aged 11 - 14, which means year 7, 8 and 9. The third one is the most revealing one for our purpose of sex education.

- Energy, electricity and forces
- Chemical and material behaviour
- Organisms, behaviour and health
- The environment, Earth and universe

The topic organisms, behaviour and health consists of the following subcategories:

- a) Life processes are supported by the organisation of cells into tissues, organs and body systems
- b) The human reproductive cycle includes adolescence, fertilisation and foetal development
- c) Conception, growth, development, behaviour and health can be affected by diet, drugs and disease
- d) All living things show variation, can be classified and are interdependent, interacting with each other and their environment
- e) Behaviour is influenced by internal and external factors and can be investigated and measured.

Obviously, it can be stated that some main parts of sex education are included in the national curriculum for key stage 3 in science. These aspects are summed up as the human reproductive cycle in b) adolescence, fertilisation and foetal development and partly in c) with the effect of diet, drugs and disease on conception. These topics of sex education are clearly stated and, thus, should be included by science teachers in their lessons.

Besides, there are some more conclusions one could draw when focusing on sex education. One could argue that the reference to the word organs in a) should include the human genitals as these are the organs for reproduction. In addition, the words growth and development in c) could refer to physical changes during puberty. Likewise, the word behaviour in c) and e) might refer to psychological and behavioural changes during puberty. Nevertheless, these statements about a), d) and e) are mere assumptions without any more concrete hints and can therefore not be taken seriously into account for this research.

In addition to the enumeration above, there are curriculum opportunities labelled from a) to k) which should be offered to the students during key stage 3. These are, however, very vague and not compulsory. They include universal recommendations such as ‘experiment, discuss and develop arguments’ or ‘use real-life examples’ and ‘use creativity and innovation in science’. Solely point j) directly refers to sex education, stating ‘consider how knowledge and understanding of science informs personal and collective decisions, including those on substance abuse and sexual health’. (National Curriculum for Science, DOR: 22.10.2010)

Summing it up, it is clearly stated in b) and c) above what aspects of sex education have to be dealt with in science. However, these recommendations or guidelines refer to key stage 3 in general and do not tell whether they should be taught in year 7, 8 or 9. The chronological organisation of various subtopics might vary a lot between different schools. Therefore, a student who has to swap schools at the end of year 8 could miss out on many aspects of sex education because his or her old school would have taught it later in year 9 while his or her new school already dealt with it at the beginning of year 8. Besides, the national curriculum does not give any more guidelines on how intense these topics should be dealt with in class in terms of time and depths or testing.

2.3.3.2. PSHE at Key Stage 3

According to the national curriculum, the subject PSHE at key stage 3 is divided into the two main parts ‘economic wellbeing and financial capability’ and ‘personal wellbeing’. On the one hand, the first part of PSHE deals with aspects such as employment, business and finance. On their website, QCDA describe it as follows: ‘This non-statutory programme of study brings together careers education, work-related learning, enterprise and financial capability’. There are no traces of sex education to be found and will therefore not be looked at in more detail here. On the other hand, personal wellbeing is referred to as a ‘non-statutory programme of study [which] provides a context for schools to fulfil their legal responsibilities to promote the wellbeing of all pupils.’ The QCDA website lists the following 13 aspects for range and content of personal wellbeing at key state 3:

- a) examples of diverse values encountered in society and the clarification of personal values
- b) the knowledge and skills needed for setting realistic targets and personal goals

- c) physical and emotional change and puberty
- d) sexual activity, human reproduction, contraception, pregnancy, and sexually transmitted infections and HIV and how high-risk behaviours affect the health and wellbeing of individuals, families and communities
- e) facts and laws about drug, alcohol and tobacco use and misuse, and the personal and social consequences of misuse for themselves and others
- f) how a balanced diet and making choices for being healthy contribute to personal wellbeing, and the importance of balance between work, leisure and exercise
- g) ways of recognising and reducing risk, minimising harm and getting help in emergency and risky situations
- h) a knowledge of basic first aid
- i) the features of positive and stable relationships, how to deal with a breakdown in a relationship and the effects of loss and bereavement
- j) different types of relationships, including those within families and between older and young people, boys and girls, and people of the same sex, including civil partnerships
- k) the nature and importance of marriage and of stable relationships for family life and bringing up children
- l) the roles and responsibilities of parents, carers and children in families
- m) the similarities, differences and diversity among people of different race, culture, ability, disability, gender, age and sexual orientation and the impact of prejudice, bullying, discrimination and racism on individuals and communities.

It goes without saying that the national curriculum for PSHE at key stage 3 is full of aspects of sex education. Section c) about puberty and d) about sexual activity, human reproduction, contraception, pregnancy, sexually transmitted infections and HIV obviously play a key role in sex education. In addition, sections i) to l) deal with aspects which are closely linked to sex education such as different kinds of relationships, family life and bringing up children. Besides, m) mentions similarities, differences and diversity among people of different sexual orientation. Thus, it is clearly stated in the national curriculum for PSHE which aspects of sex education have to be dealt with at key stage 3.

One could, however, notice three points of criticism. Firstly, the national curriculum does not tell how intense in terms of depths and school lessons used the different sub-categories need to be taught. Secondly, key stage 3 includes years 7, 8 and 9 which means students aged 11 – 14 years. So, if one takes the national curriculum as only guidance for

PSHE, it is completely up to school policy or even individual teachers what kind of topics are dealt with in which of these three years. Thirdly and most importantly, the curriculum for personal wellbeing in PSHE at key stage 3 is officially referred to as ‘programme of study (non-statutory) for key stage 3’. The attribute non-statutory means that it is not compulsory, established or regulated by law. Thus, the curriculum is not mandatory to be used but rather serves as recommended guidelines for PSHE teachers at state schools.

In addition to the 13 aspects of range and content of PSHE summed up above, 8 curriculum opportunities are mentioned. They are said to be integral to students’ learning ‘and enhance their engagement with the concepts, processes and content of the subject’. However, none of these 8 aspects directly refers to sex education or carries a key word like puberty in its description. So, there is no need in listing them here or analysing them in any way.

2.3.3.3. *Science at Key Stage 4*

The science programme of study for key stage 4 is applied in years 10 and 11, which means for students aged 14 to 16. In contrast to PSHE, the following extract from the national curriculum (2007) does not carry the attribute non-statutory and is therefore statutory and obligatory for science teachers at state schools. The breath of study is divided into four main categories which are very similar to the categories for key stage 3 mentioned earlier in 2.3.3.1 science at key stage 3:

- Organisms and health
- Chemical and material behaviour
- Energy, electricity and radiations
- Environment, earth and universe

Dividing the first aspect ‘organisms and health’ into its subcategories, it shows that there are no direct references to human sex education to be found:

- a) organisms are interdependent and adapted to their environments
- b) variation within species can lead to evolutionary changes and similarities and differences between species can be measured and classified
- c) the ways in which organisms function are related to the genes in their cells
- d) chemical and electrical signals enable body systems to respond to internal and external changes, in order to maintain the body in an optimal state

- e) human health is affected by a range of environmental and inherited factors, by the use and misuse of drugs and by medical treatments.

There are, however, a few key words which could be put in a wider relationship with sex education and might be used by science teachers to refer to topics already dealt with. Topics which seem to be suitable for a connection are for example the study of heredity versus adaption in a), c) and e) because of the key words adapted, cells and inherited factors. Furthermore, the expressions variation and evolutionary changes in b) are closely linked to the topic sexual selection and evolution. It goes without saying that the most obvious link to sex education is to be found in d). The key words chemical and electrical signals might be used as a starting point for talking about hormones, including sex hormones. However, one needs to bear in mind that these suggestions are mere assumptions but not compulsory for science teachers to include in their lessons. Therefore, the conclusion is obvious that the national curriculum for science at key stage 4 does not directly include sex education. As stated in both previous sections, it is not obvious at all which of these topics should be taught in year 10 and which in year 11.

2.3.3.4. PSHE at Key Stage 4

Finally, PSHE at key stage 4 is likewise as key stage 3 divided into the two parts ‘economic wellbeing and financial capability’ and ‘personal wellbeing’. Both sections are non-statutory programmes of study and therefore not compulsory to incorporate in the lessons. Economic wellbeing in year 10 and 11 covers occupational, economic and financial aspects but does not deal with sex education at all. According to QCA online, the following aspects should be included in the subject personal wellbeing in PSHE for students aged 14 – 16 years:

- a) the effect of diverse and conflicting values on individuals, families and communities and ways of responding to them
- b) how the media portrays young people, body image and health issues
- c) the characteristics of emotional and mental health, and the causes, symptoms and treatments of some mental and emotional health disorders
- d) the benefits and risks of health and lifestyle choices, including choices relating to sexual activity and substance use and misuse, and the short and long-term

consequences for the health and mental and emotional wellbeing of individuals, families and communities

- e) where and how to obtain health information, how to recognise and follow health and safety procedures, ways of reducing risk and minimising harm in risky situations, how to find sources of emergency help and how to use basic and emergency first aid
- f) characteristics of positive relationships, and awareness of exploitation in relationships and of statutory and voluntary organisations that support relationships in crisis
- g) the roles and responsibilities of parents, carers, children and other family members
- h) parenting skills and qualities and their central importance to family life
- i) the impact of separation, divorce and bereavement on families and the need to adapt to changing circumstances
- j) the diversity of ethnic and cultural groups, the power of prejudice, bullying, discrimination and racism, and the need to take the initiative in challenging this and other offensive behaviours and in giving support to victims of abuse.

The key words sexual activity to be found under d) definitely refer to sex education. Apart from that, subcategory b) might be connected to sex education because adolescents in the media are often presented as having sexual intercourse at a very young age. C) and j) are not related to sex education in any obvious way. The expression reducing risk in e) might refer to sexual diseases. Enumerations a) and f) to i) include key words such as relationships, family and parenting skills which could be connected to sex education in a wider and softer context. Strictly speaking, solely subcategory d) proves to have a direct connection to sex education when mentioning health and lifestyle choices relating to sexual activity. It does, however, not explain in more detail how and to what extent these lifestyle choices should be taught. Besides, it is not clearly stated whether these 9 recommendations for PSHE should be taught in year 10 or 11. Furthermore, curriculum opportunities for PSHE at key stage 4 do not provide any concrete connections to sex education, either. Thus, the selected point d) ‘the benefits and risks of health and lifestyle choices, including choices relating to sexual activity’ remains the only undeniable point of reference for PSHE teachers.

3. Hypothesis and Research Questions

The hypothesis and several research questions are presented in this section. Together, they form the golden thread of this thesis. Finding proof for or against the hypothesis along with answering the research questions are the guiding principles in this paper.

The hypothesis can be summed up as follows:

- Sex education at schools in England is taught to a lesser extent than sex education at schools in Austria.

In order to verify or falsify that hypothesis, a number of research questions have to be answered first:

- In which grade of school and to what extent must sex education in England be taught according to the national curriculum?
- Are there significant differences to the Lehrplan in Austria?
- How does the Heathland School as case study apply the curriculum in practice?
- How do science and PSHE teachers at the Heathland School feel about teaching sex education?
- How would they describe students' reactions?
- How much time do they devote to sex education?
- Which subtopics are dealt with in particular?
- Is it appropriate to claim that the way and extent to which sex education is taught at schools in England is one of many reasons for a particularly high rate of teenage pregnancies?

For answering these research questions and consequently finding proof for or against the hypothesis of this thesis, a three-part strategy is applied. Besides, the Heathland School in West London has been selected to serve as case study for part 2 and 3 of this strategy. The overall aim is to find out whether and how the national guidelines for teaching sex education are carried out in current practice in this English Comprehensive School.

First, a comparison between the English and Austrian curriculum for sex education at secondary school stage is carried out. An evaluation of the curricular situation is presented in the introduction of this thesis whereas the direct comparison is dealt with in section 5 *Results*

and analysed in section 6 *Discussion*. A main focus lies on contents, time devoted to sex education and obligation to follow these guidelines.

Second, 9 science lessons and 5 PSHE lessons dealing with sex education at the Heathland Schools have been observed. These lessons are described with a focus on subtopic covered and time devoted to sex education. So, it will become apparent whether the sex education teachers under observation stick to the guidelines in the national curriculum or not.

Third, questionnaires for science and PSHE teachers who were teaching sex education at the Heathland School in 2009/2010 have been created and were handed out. Questions such as number of lessons devoted to sex education, subtopics dealt with, teachers' experiences and attitudes towards sex education and students' reactions form the main part of the questionnaire. The results of the second and third approach are presented in section 5 *Results* and analyzed in section 6 *Discussion*.

4. Material and Methods

As mentioned in the previous section *3 Hypothesis and Research Questions*, a three-piece strategy is applied in order to answer the research questions and consequently finding proof for or against the hypothesis of this thesis. First of all, the English and Austrian curricula for sex education at secondary school stage are compared. Then, several sex education lessons at the Heathland School which have been observed are described. Afterwards, questionnaires for science and PSHE teachers are evaluated. Finally, the Heathland School is described in more detail because it serves as case study for this thesis.

4.1. Comparison of Sex Education Curricula

Section 2.3 *Sex Education* listed and described the elements of sex education to be found firstly in the curriculum for secondary school stage in England and secondly in the Lehrplan for Austria. The official educational websites of the two respective countries are used as main source. The findings are compared with each other in section 5.1 and, as a further step, discussed in 6.1 in more detail. There are three criteria used for the comparison of the Austrian Lehrplan and the English National Curriculum. First, the separation of sex education into two subjects namely PSHE and science is analysed. Second, the specification of age groups plays a role. Third, the actual content of the respective curriculum is compared.

4.2. Observations at the Heathland School

In order to find out whether an average English secondary school follows the guidelines from the national curriculum, 14 sex education lessons have been observed at the Heathland School in West London. That school is described in more detail in subsection 4.4. As a first step, it was necessary to get the consent to the observations from the headmaster, head of curriculum, head of science, head of PSHE and respective teachers at the Heathland School. Then, Tom Carbro, who is head of science and Chris Walsgrove, who is head of PSHE helped to establish contact to teachers of sex education who usually do not mind being observed.

Soon, it turned out as impossible to observe all sex education lessons taught at the Heathland School in 2009/2010. Firstly, many lessons collided temporally with my timetable as German language assistant. Some have already been held in September or October, which

means before I started working at the Heathland School and got the chance to establish personal contact. Secondly, all PSHE lessons were usually taught simultaneously on Wednesday period 1 which made it impossible to watch them all at the same time. Thirdly, a number of teachers simply refused to let me observe and describe their lessons.

Thus, 9 science and 5 PSHE lessons have been observed in total and serve as representative cross section for sex education at the Heathland School. These 14 lessons are described in 5.2 with a focus on the number of lessons spent on sex education in this school year, topics covered in the individual lessons and depths of study or intensity. Section 6.2 discusses the findings in more detail and compares them with the content of the national curriculum. It will become apparent whether the sex education teachers under observation stick to the guidelines in the national curriculum or not. Table 3 lists the dates and years of the lessons observed. One lesson lasts 50 minutes. In England, year 7 students are aged 11 or 12 whereas year 10 students usually are 14 or 15 years old.

Table 4 List of PSHE and science observations, Heathland School 2009/2010

Date	Period	Subject	Class	Teacher
December 9 th	1	PSHE	Year 8	Mr. B
December 16 th	1	PSHE	Year 8	Ms. G
January 28 th	3	Science	Year 7x2	Mr. L
January 29 th	6	Science	Year 7x2	Mr. L
February 1 st	5	Science	Year 7x2	Mr. L
February 4 th	3	Science	Year 7x2	Mr. L
March 10 th	1	PSHE	Year 10	Mr. M
March 10 th	5	Science	Year 7y3	Ms. C
March 15 th	4	Science	Year 7y3	Ms. C
March 17 th	1	PSHE	Year 10	Mr. M
March 17 th	5	Science	Year 7y3	Ms. C
March 24 th	1	PSHE	Year 9	Ms. L
March 24 th	5	Science	Year 7y3	Ms. C
March 31 st	5	Science	Year 7y3	Ms. C

4.3. Questionnaires for Teachers of Sex Education

A third strategy is applied in order to find out more about personal opinions and experiences of science and PSHE teachers as well as attitudes towards giving sex education lessons. One questionnaire for PSHE and one for science has been created, printed and handed out anonymously to teachers who were teaching sex education at the Heathland School in 2009/2010. These two questionnaires are almost identical and only differ in minor aspects such as replacing PSHE for science in some headings, questions or answering options. Both questionnaires consist of three main sections namely A) B) and C). The questionnaire for science teachers is to be found in the appendix. Part A) deals with questions related to teaching sex education in PSHE or in science in any given year. Section B) can only be filled in when having taught sex education in 2009/2010 at the Heathland School. Finally, part C) provides some personal details of the respective teachers such as gender.

The majority of ideas for what kind of questions to ask developed via various observations of sex education lessons at the Heathland School in 2009/2010. In addition, some questions are closely linked to the national curriculum and serve as means of control to find out whether the guidelines from the curricula have been followed or not. Summing it up, the main focus of the questions is on number of lessons devoted to sex education, sub-topics dealt with, teachers' experiences and attitudes towards that topic and students' reactions. Before handing the questionnaires out, it was necessary to get permission from Mr. Carbro, head of science and Mr. Walsgrove, head of PSHE. They also helped optimizing the questions and double-checked the questions for relevance. Besides, the consents from the headmaster and head of curriculum needed to be given. As there were no questions designed for students, there was no need for getting parents' consents. Finally, questionnaires for 13 science and 50 PSHE teachers have been printed and handed out.

Most questionnaires have been filled in and handed back within three weeks which means by the beginning of June 2010. 4 further questionnaires have been sent electronically within the next two months. As the questionnaires have been handed out solely to teachers of the Heathland School, only a comparatively small number of 30 questionnaires has been handed back. The main reasons for the little response are on the one hand, that there are not many science teachers at one school of average size and that even among them, not everyone has taught sex education in 2009/2010. On the other hand, PSHE teachers who did not cover sex education in the respective year tended to not even fill in the general questions on sex education to be found in A). Surprisingly, there was not a single teacher of PSHE year 7 who

handed back the questionnaire even though the head of PSHE claimed that puberty should be covered in year 7. Furthermore, 3 questionnaires have been filled in incorrectly or too fragmentary to make use of them and therefore had to be excluded from the analysis which results in a number of 27 questionnaires. These 8 science and 19 PSHE forms have been handed back filled in correctly and, therefore, can be used for analysing part A) of the questionnaire.

Solely teachers who have taught sex education in science or PSHE in 2009/2010 at the Heathland School were mean to fill in part B) of the questionnaire. As not every teacher fulfils that condition, another 6 forms had to be removed for the second section of the questionnaire. So, 4 science and 17 PSHE questionnaires remain for an analysis of section B). Besides, 2 science and 4 PSHE teachers have taught sex education to more than one class in 2009/2010. Comparing the information from the two respective classes taught by the same teacher shows that he or she gave identical answers for both classes. As these equivalent and additional answers would falsify the results, they are put aside. Summing it up, section A) refers to 8 year 7 science questionnaires and 19 PSHE questionnaires of different age groups. Section B) deals with 4 year 7 science questionnaires and 17 PSHE questionnaires of different age groups. Splitting the PSHE forms up into year groups means that 6 questionnaires refer to year 8, 4 to year 9, 5 to year 10 and 2 to year 11.

Before actually getting started with the interpretation of the findings, the data had to be double-checked thoroughly in order to avoid typing mistakes and, as a consequence, irrelevant results. The outcomes are handled using the programme PASW Statistics 18 and are presented in 5.3 *Questionnaires for Teachers of Sex Education*. By means of contingency tables, χ^2 's and asymptotic significances at the respective degree of freedom have been calculated. An asymptotic significance of less than 5 % or $\leq 0,05$ indicates that the two variables under research are related, at least in the data set used. Only those questions from the questionnaires which already showed interesting results in PASW Statistics 18 were used for further analysis. Bar diagrams of these questions have been created in excel. The findings are analysed closely and discussed in 6.3 *Questionnaires for Teachers of Sex Education*.

The following questions were chosen for further analysis:

- A4) How do you personally feel about teaching sex education? ⇔ Subject and gender
- B3) How many lessons did you devote to sex education in 2009/2010? ⇔ Classes
- B4) Which topics did you cover this school year? ⇔ Subject

B5) How would you describe the students' reactions? ⇔ Science and PSHE combined

B7 and B8) Do most parents know of their right to take their children out of sex education lessons and did any parents do so? ⇔ Science and PSHE combined

B12) In which way(s) did you test your students' knowledge? ⇔ Subject

4.4. Sex Education at the Heathland School – Case Study

As established in the previous chapter 2.3.3, sex education in England is regulated according to the compulsory curriculum for science and complemented with recommended but non-obligatory guidelines for PSHE. It comes as no surprise that there is a huge variation in the way and extent to which sex education is taught at English schools. These differences depend a lot on region, individual school policy and socio-cultural background of students and teachers. In addition, sex education might be dealt with in different ways even within one school depending on attitude and motivation of the respecting teacher.

It goes without saying that generalizations about sex education in English schools are really hard to establish. As a matter of fact, schools in the countryside or in the north of England are totally different from schools in bigger cities. Thus, it is impossible to find one typical school, capable of representing all other schools. An ordinary comprehensive school in west London has been selected to serve as case study. The capital of the UK is a multi-cultural and extremely diverse city. The reasons why the Heathland School has been selected for this case study are numerous and will be dealt with in the paragraph below. The aim of the following three subsections is to find out how the national curriculum for teaching sex education is carried out in current practice at the Heathland School.

4.4.1. School Profile

The Heathland School is a Co-educational Community Comprehensive School and located in West London, to be more precise in the suburban town Hounslow in the Borough of Hounslow as indicated and colour-coded in figure 2 below.

Figure 2 Boroughs of London, Hounslow in red
(online, www.londontown.com, DOR: 23.10.2010)



On its website, the Heathland School is described as follows:

‘The Heathland School provides a broad general education for girls and boys in an environment of high achievement. Within a traditional ethos the school encourages each individual pupil (regardless of age, sex, race, culture or disability) to strive for excellence and to realise his or her potential [...] Our strong record of university places signifies our aim to provide all pupils with an environment which will encourage them to access higher education in some of the best universities in the country. [...] (Heathland School online)

Besides, the most recent Ofsted inspection at the Heathland School led on to the following conclusion:

‘The Heathland School is an outstanding school with a strong commitment to inclusion. All members of the school community work consistently hard to maintain high standards and to serve the needs of young people in the local area.’ (Heathland School online)

The Heathland School hosts approximately 1800 students from 11 to 18 years. The youngest students aged 11 to 12 attend year 7 and the eldest are 15 to 16-year olds in year 11. The standard admission number for new students attending year 7 is 270 pupils a year. In addition, elder students have to possibility to stay two more years at Heathland School to be prepared for their A-levels. From then on, they are called sixth formers and are the only ones who are not obliged to wear school uniform any more. A typical school year consists of three terms which are autumn, spring and summer term. They are separated by summer, Christmas and Easter holidays. Each term is divided into two halves by one week of holidays, the so-called half-term holidays. Thus, a half term usually consists of about 6 weeks.

The school year 2009/2010 at the Heathland School was organised as follows:

- Autumn term 1st half, 3rd September to 23rd October
- One week half-term holidays, 26th to 30th October
- Autumn term 2nd half, 2nd November to 18th December
- Christmas holidays, 21st December to 1st January
- Spring term 1st half, 4th January to 12th February
- One week half-term holidays, 15th to 19th February
- Spring term 2nd half, 22nd February to 1st April
- Easter holidays, 5th to 16th April
- Summer term 1st half, 19th April to 28th May
- One week half-term holidays, 31st May to 4th June
- Summer term 2nd half, 7th June to 16th July
- Summer holidays from 19th July onwards

There are several reasons why the Heathland School is highly suitable to serve as case study for this thesis. Firstly, the Heathland School is a comparatively big school in terms of number of students and teachers. This enhances the chance of observing a higher number of sex education lessons, more variety in the lessons and more different teaching styles than in a small school. Secondly, the age group of 11 year-olds and older is perfect for a research on sex education because this is the critical period of time for teenage pregnancies. Thirdly, the Heathland School is a state school which means that students do not have to pay school fee. All children in the area have access to this school regardless of their parents' income. Thus, students attending the Heathland School are characterised by a huge variety in social background, aptitude and support from home. Fourthly, the Heathland School is located in an

average suburban town which is neither particularly wealthy nor extremely poor or suffering from unusually high crime rates. Most pupils have an Indian or Pakistani background. Fifthly, the Heathland School labels itself a science college. Thus, one can assume that the level in science is at least average and that sex education is taken seriously. Lastly, I got the chance to work as German language assistant at the Heathland School. The period of appointment was 1st October 2009 until 31st May 2010. This period of time was used for observing science and PSHE lessons, talking to teachers and carrying out research on sex education.

As about 1800 students attend the Heathland School, a system of streaming is used to divide them into groups according to their efforts and aptitude. Taking year 7 as an example, students are firstly divided into three bands according to whether English is their first or second language, or if they have any other disadvantages with regard to studying. These bands are called 7x, 7y and 7z whereby the level in 7x is highest and 7z lowest. That kind of classification usually stays as it is during the whole year or even during the whole period of time a student is attending Heathland School. Secondly, students are divided into three or four sets within their bands. The brightest children are put into top sets whereas weaker ones end up in bottom sets. Roughly speaking, 7x1 is the best group whereas 7z3 or 7z4 are the weakest groups within their year group. The classification into sets is more flexible than the one into bands. If for example, students in 7y3 science perform very well and achieve good results at tests, they might be upgraded to 7y2 at the end of a half term. It goes without saying that poorly performing students might be worse-rated and then would have to join another group. This system of streaming into sets is subject-specific. A student can be in a top set in languages but in an average or bottom set in maths. Thus, students at the Heathland School might have completely different classmates in German, science or maths.

As established in section 2.3.3, the English curriculum suggests that some aspects of sex education are taught in science and others in PSHE. The Heathland School along with most English schools sticks to this division. However, there are some schools which decide to find their own ways of teaching sex education. Furthermore, parents have the possibility to opt their children out of sex education for personal or religious reasons. For doing so, they just need to fill in a form and the school has to provide an alternative activity for the respecting children. These alternative lessons might be about anything else but not necessarily science or topics related to sex education. Talking to the head of science at the Heathland School, Mr. Carbro, he confirmed this right of parents but immediately added that it does not happen very often. He could only think of one example where a gipsy family wanted their children to be excluded from sex education lessons some years ago. They got their will

without any further troubles. Considering this anecdote leads to the conclusion that English parents have the power to prevent their children from attending any sex education lesson during all their school years. According to Mr. Carbro, there might also be some teachers who feel embarrassed when teaching sex education and therefore minimize or totally neglect it. Thus, an adolescent aged 16 or elder who thinks about having sexual intercourse might have never heard of contraception or sexually transmitted diseases from a reliable source before. Taking this assumption even further, this lack of knowledge might lead to diseases or pregnancies at a very young age. Nevertheless, the option of opting out children from sex education is not used very often. In most cases, every student at the Heathland School gets to be taught aspects of sex education in science and in PSHE.

Furthermore, Mr. Carbro highlighted that the rate of teenage pregnancies in Hounslow is not strikingly high. He assumes that a strict upbringing and negative attitude towards sexual intercourse before marriage in most Indian and Pakistani families are main reasons for little teenage pregnancies. Besides, he confirmed that most teenage pregnancies in the United Kingdom happen in white lower and working classes. The next two sections will highlight which topics of sex education are dealt with in science and PSHE.

4.4.2. Sex Education in Science

Science teachers at the Heathland School have a scientific background. This means they already picked science in their teacher training and can therefore be regarded as experts in their subject. Roughly speaking, students get to know the rather scientific and anatomical aspects of sex education such as physical changes in puberty in the subject science. Using the example of puberty again, PSHE would rather deal with social changes in puberty. Thus, science and PSHE are meant to complement each other in sex education.

Mr. Carbro, the head of science at the Heathland School, explained that sex education is mainly taught in year 7 and only very little in year 10. Year 7 teachers use a very popular book named 'Exploring Science 7. How Science works'. Pages 24 to 34 deal with sex education and include the following topics:

- Reproductive organs: Sperm and egg production
- Sex: Active copulation
- Fertility treatment
- Periods

- Being pregnant
- A healthy foetus
- Giving birth
- Growing up: Puberty and adolescence
- Lifecycles

Apparently, there is nothing on contraception neither in the science book for year 7 nor in the national curriculum. According to Mr. Carbro, contraception is dealt with in PSHE in year 7 or 8. PSHE should also include topics such as sexually transmitted diseases, how to transmit them and being emotionally ready for partnership.

In year 10, science is taught for GCSE students and, therefore, on a more advanced level. Some aspects of sex education are repeated or dealt with in more depths in year 10. These topics are for example hormones, Charles Darwin and evolution, the advantages of sexual reproduction, male and female gametes and cells. There is, however, nothing on contraception, either. Out of his own experience, Mr. Carbro highlighted that some teachers do more on specific topics than is demanded whereas others do not extend at all.

Considering Mr. Carbro's utterances, one gets the impression that science at the Heathland School is taught according to the national curriculum. Besides, the head of science verbally confirmed that his department sticks to the national curriculum which has been described in more detail earlier in section 2.3.3. The questionnaire and several science observations to be found later in this thesis will provide more insight into science lessons at the Heathland School and support or negate Mr. Carbro's assumption.

4.4.3. Sex Education in PSHE

PSHE is the abbreviation for personal, social, health and economic education and taught once a week by the form teachers. The lesson takes place each Wednesday in period 1 and is taught together or alternating with a subject called citizenship. According to Mr. Walsgrove who is head of PSHE, this subject is not taken as seriously as others and is dropped from time to time due to tests in others subjects or other events. Students do not have to sit any exams in PSHE and usually do not get any homework. The respective form teacher might have a teaching qualification for any subject but not necessarily science. PSHE tutors are non-specialist

teachers in sex education. Even though a high number of PSHE teachers are not tested in science, they are supposed to deal with some aspects of sex education in their PSHE lessons.

According to Mr. Walsgrove, the key topics for sex education in PSHE are contraception, personal hygiene and love. The head of PSHE takes the national curriculum as a vague guideline but does not completely stick to it. He recommends to his teachers what kind of topics should be taught in which term and provides teaching material on the shared area on teachers' computers. Mr. Walsgrove emphasises that it is mainly up to the teachers what exactly of his recommendations and to what extent they teach. Thus, it depends a lot on individual school policy and teachers' attitudes what students get to be taught.

According to Mr. Walsgrove, the following Secondary Sex and Relationships Curriculum is applied for PSHE at the Heathland School:

- Year 7: Puberty; My body
- Year 8: Sex and sexuality
- Year 9: Contraception; Sexually transmitted diseases and safer sex
- Year 10: HIV/Aids; Accessing support, A module on teenage pregnancy
- Year 11: Parenting skills and choices; The whole picture
- Key Stage 3 = Year 7 - 9: Relationships 1; Skills for situations 1
- Key Stage 4 = Year 10 + 11: Relationships 2; Skills for situations 2

If one compares the list above with the non-statutory national curriculum for personal wellbeing in PSHE at key stages 3 and 4, a tight connection gets obvious. These recommended guidelines are also summed up in this paper in 2.3.3.2 PSHE at Key Stage Three and in 2.3.3.4 PSHE at Key Stage 4. All aspects dealing with sex education which are mentioned in the national curriculum for PSHE are also recommended by the head of PSHE at the Heathland School. Thus, one can conclude that the Heathland School wants its PSHE teachers to follow these national guidelines, even though they are non-statutory. The following questionnaires and PSHE observations to be found in the empirical part of this thesis will reveal whether the form teachers really teach sex education in PSHE as they are expected to.

5. Results

This section presents the findings from the comparison of sex education curricula, observations at the Heathland School and results from the questionnaires for science and PSHE teachers. The results are interpreted in the next section 6 *Discussion*.

5.1. Comparison of Sex Education Curricula

The key elements of sex education at secondary school level have already been mentioned and briefly discussed in the introduction. Section 2.3.1 presents the Austrian Lehrplan whereas section 2.3.3 covers sex education in England according to the national curriculum. The main findings are summed up in this section and compared with each other. Only topics of sex education which are clearly stated in the two curricula and their obvious ranges are highlighted now. Further vague hints to more topics or recommendations have been described in 2.3.1 and 2.3.3 but are left aside at this stage. Likewise, there are several curriculum opportunities accompanying the national curriculum for science and PSHE. Teachers are reminded to offer these opportunities to their students during key stage 3 and 4. These curriculum opportunities are not dealt with now, either, because they are not compulsory to include in one's teaching. They are described very vaguely and could be regarded as mere recommendations with the intention to simply bear them in mind.

The ultimate outcome of the comparison is discussed later in section 6.1 *Comparison of Sex Education Curricula*. The three main criteria for the comparison are the separation of sex education in science and PSHE in England, allocation of topics into specific years or just age groups, and contents or topics dealt with. As for now, the topics covered in sex education at AHS Unterstufe and likewise at key stage 3 are listed in table 5 below, followed by the topics at AHS Oberstufe and likewise at key stage 4 in table 6.

Table 5 Topics covered in sex education at AHS Unterstufe and at key stage 3

Austria, AHS Unterstufe Lehrplan for biology	England, National Curriculum key stage 3
Year 1 AHS: Students aged 10 or 11 <ul style="list-style-type: none">- Anatomy and function of reproductive organs- Menstruation, conception, pregnancy and	Year 7 – 9 science: Students aged 11-14 <ul style="list-style-type: none">- The human reproductive cycle includes adolescence, fertilisation and foetal development

<p>giving birth</p> <ul style="list-style-type: none"> - Physical and psychical development and sensitivities during puberty - Informing about sexual abuse and prophylaxis 	
<p>Year 4 AHS: Students aged 13 or 14</p> <ul style="list-style-type: none"> - Sexuality as a biological, psychological and social phenomenon - Contraception and pregnancy - HIV prophylaxis 	<p>Year 7 – 9 PSHE: Students aged 11-14</p> <ul style="list-style-type: none"> - Physical and emotional change and puberty - Sexual activity, human reproduction, contraception, pregnancy, and sexually transmitted infections and HIV [...] - Different kinds of relationships, family life and bringing up children - [...] gender and sexual orientation

Table 6 Topics covered in sex education at AHS Oberstufe and at key stage 4

Austria, AHS Oberstufe Lehrplan for biology	England, National Curriculum key stage 4
<p>Year 6 AHS: Students aged 15 or 16</p> <ul style="list-style-type: none"> - To deepen an understanding of sexuality as a biological, psychological and social phenomenon - To encourage a responsible way of dealing with sexuality (sexual ethics) - To gain knowledge about possibilities of reproductive manipulation and human embryonic development - To gain insight into the basic function of the immune system and recognise disorders (allergies, HIV) 	<p>Year 10 and 11 science: Students aged 14-16</p> <p>The national curriculum for science at key stage 4 includes some key words which might point towards the topics indicated in brackets:</p> <ul style="list-style-type: none"> - Adaption, variation and evolution (Charles Darwin, sexual selection) - Genes in cells, inherited factors for human health (heredity, genetics) - Chemical and electrical signals in body systems (hormones)
<p>Year 8 AHS: Students aged 17 or 18</p> <ul style="list-style-type: none"> - To get an insight into research foci of modern life sciences such as stem cell research or new reproductive methods 	<p>Year 10 and 11 PSHE: Students aged 14-16</p> <ul style="list-style-type: none"> - The benefits and risks of [...] choices relating to sexual activity - Relationships, family and parenting skills

5.2. Observations at the Heathland School

This section presents the results of the science and PSHE observations carried out at the Heathland School in 2009/2010. A closer analysis and discussion is presented later in 6.2. Two different science classes and four tutor groups in PSHE have been observed. The 14 lessons are described with a focus on the number of lessons spent on sex education in this school year, topics covered in the individual lessons and depths or intensity the topics have been dealt with. In addition a number of lessons which could not be observed for various reasons are included. These intended lessons have been described by the respective teacher and, thus, also provide useful information on different approaches of teaching sex education.

5.2.1. Observations of Science Lessons

Year 7x2, top set, Mr. L, science teacher

Mr. L is an experienced and self-confident science teacher who has taught sex education many times before. In contrast to most other teachers at the Heathland School, he hardly uses the computer or other electronic teaching material. His lessons are characterised by asking and answering questions and many drawings or sketches on the whiteboard. As 7x2 is a top set and consists of students regarded as brighter than average students, the scientific level was quite high for that age group. Most students in his mixed-sex group were able to follow the teacher's pace without problems.

Mr. L said to spend on average 5-6 lessons on sex education in year 7. With his current year 7 top set, however, he spent 9 lessons on sex education. I got the chance to observe the lessons on the 28th and 29th of January and on the 1st and 4th of February.

The following topics have been covered in Mr. L's teaching sequence on sex education:

- Lesson 1: Introduction: Sexual and asexual reproduction, use the model of hydra
Showing different ways of reproduction and thus, highlighting that not everything is sexual reproduction
- Lesson 2: Sex life, cycle of a fly, the teacher bought larvae (= maggots) and pupa in an angler-shop and showed them to the pupils
- January 25th: Human sexual reproduction
Female reproductive organs

A lot of questions and answers in that lesson

- January 26th: Female reproductive organs continued
Male reproductive organs
Puberty, a lot of questions and answers in that lesson, video
- January 28th: Repeat reproductive organs
Fertilisation (a model of vagina and oviduct)
Foetus versus embryo, compare the models of plastic babies
Show different stages of development, a 'look and hands on' lesson
- January 29th: Repeat and consolidate key words such as uterus, umbilical cord, placenta, amnion, foetus, embryo
Pregnancy and birth, teacher explanation and short video
Video also includes puberty, reproductive organs, and female cycle
- February 1st: The menstrual cycle (experiment)
Short video on hormones, the endocrine system
- February 4th: Revising lesson for the test on cells, organs and reproduction
- February 5th: Test, 30 minutes

Year 7y3, bottom set, Ms. C, science teacher

Ms. C is a young but also experienced teacher. She teaches science to a lower mixed-sex set than Mr. L. As one could have expected, the 5 lessons I observed were less scientific and less packed with information than the ones in Mr. L's higher set. Her teaching sequence of sex education was easier to follow and characterised by slow pace and lots of repetitive elements. Besides, Ms. C frequently used short interactive games or competitive boys versus girls' games for repetition. Altogether, Ms. C spent 8 lessons on sex education. The lessons on the 10th, 15th, 17th, 24th and 31st of March have been observed by me.

The teaching sequence on sex education in 7y3 science consisted of:

- March 10th: Introduce topic sex and science
What is reproduction?
Egg and sperm cells
The human reproductive system
- March 15th: The route for the sperm cell to get to the egg cell
Labelling sperm cells and egg cells

Twins (very briefly)

- March 17th: Repeat everything from last lesson
New key words: Ovulation, ejaculation, fertilisation, implantation
- March 22nd: Repeat everything from last lesson, many questions and answers
Administrative work (sorting dates for parents evening)
- March 24th: Pregnancy
New key words: Foetus, amniotic fluid, amnion, placenta, umbilical cord, premature
- March 29th: An oral test on the new words
A question and answer session
Repetitive games
- March 31st: Growing up, changes during puberty
The menstrual cycle
- After Easter: Test

Year 7, top and bottom set, Ms. P, chemistry teacher, intended observation

Ms. P is a chemistry teacher who does not like teaching biology at all. I did not get the chance to observe any of her sex education lessons but she told me how she handled them. Therefore, her approach is included in this paper. Ms. P taught sex education in a top and a bottom set and devoted 8-10 lessons to that topic. She described the students as shy and not asking many questions. The topics she covered are listed below.

According to Ms. P, the following aspects have been covered:

- Animals reproduction and asexual reproduction (as starter)
- Labelling on the male and female reproductive system
- Sex as the act itself, calling it intercourse
- Fertilisation, sperm and egg (2 hours)
- Puberty, changes for boys and girls
- Menstruation and use of hygiene (for example tampons)
- Pregnancy and birth
- Life cycle
- Test from the shared area
- Cervix cancer and twins (only with her top set)

5.2.2. Observations of PSHE Lessons

Year 7, Ms. K, MFL teacher, intended observation

Ms. K is a newly qualified teacher of modern foreign languages (MFL) who has never had a tutor group before. She agreed to let me observe 2 lessons on puberty for her year 7 tutor group. Ms. K admitted to feel uncomfortable thinking about the lessons to come because she has never taught aspects of sex education before. She intended to separate boys and girls for the lessons on puberty so that the students are less shy and dare to ask more questions. She would teach the girls while a colleague would simultaneously be responsible for the boys.

Surprisingly, the PSHE lesson on Wednesday the 25th of November was cancelled short notice. The lessons on puberty did not take place the following week, either, and were postponed to some weeks after Christmas. At the end of January 2010, I asked Ms. K again when puberty would be taught in her year 7 tutor group. She said that puberty was postponed for summer term which means after the Easter holidays. However, Ms. K admitted that she was not sure if she would really have the chance to teach sex education to her year 7 tutor group at all.

Year 8, Mr. B, maths trainee

Mr. B is a maths trainee which means that he does not have qualified teacher status yet. In England, the last year of teacher training is divided into going to University at least once a week and teaching at two different schools for about one term each. So, Mr. B has taught sex education for the first time in that year 8 tutor group. His mentor teacher who is usually the form teacher and PSHE teacher of that group, Mr. L, commented on Mr. B's lesson plan, observed the lesson and gave him feedback afterwards.

Boys and girls were separated to make them feel more comfortable. Mr. B taught 38 boys about sex and sexuality while a female teacher simultaneously taught the girls in another classroom. Mr. B used different materials from other teachers and fused them into his own presentation. I only observed one of the 2 lesson sequence on sex education because I wanted to observe the girls group the following week. Mr. B managed to put a lot of information in the lesson observed on 9th December. The students seemed to be very keen and asked many questions.

The lessons contained the following elements:

- 9th December: How does a woman get pregnant?
 Truths and myths about pregnancy
 Main types of contraception: condoms, the contraceptive pill,
 the withdrawal method
 Legal age of sex and discussion/debate about it
 Appropriate behaviour with the opposite sex
 Introduce sexism
- 16th December: Sexism continued (sexual stereotyping)

Year 8, Ms. G, food & textiles teacher

Ms. G taught 2 PSHE lessons on sex and sexuality to the girls of her and Mr. B's tutor group. I could not observe the girls' first lesson on the 9th of December because I observed Mr. B simultaneously teaching the boys group. The lesson on the 16th of December was characterized by a very informal atmosphere. The teacher used a rather personal approach, telling stories of her own life and presenting her attitudes on homosexuality. An obvious emphasis lay on reducing prejudices against homosexuals and being more aware of and avoiding stereotypes. The girls were motivated to ask questions and to give their opinions.

The following topics have been covered:

- 9th December: Teenage pregnancy
- 16th December: How would having a baby affect your future plans?
 Homosexuality

After the lesson on teenage pregnancy, the teacher summed up her impression:

'The kids seemed to really enjoy it, they were shy at first but after a while they felt quite comfortable talking about it. I focused less on the biology side and more on the impact it would have on them and their life in the future. Thinking about how their ambitions for what they want in the future would change.

Most pupils were aware of the problems teenage pregnancy might bring but for others. I think it made them realise the commitment it would mean. Also thinking about other aspects like money, friends etc that they might not have considered before.'

(Ms. G., PSHE teacher at the Heathland School, 2010)

Year 9, bottom set, Ms. L, MFL teacher

Ms. L is a young teacher of modern foreign languages. It is the first time for her to teach sex education in PSHE to a year 9 mixed-sex tutor group. Before the actual observations, she told me that she does not like teaching sex education at all and that she does not feel confident doing it. The last of the 3 lessons devoted to contraception has been observed by me. Ms. L's PSHE group consists of about 25 boys and girls and is a set 4, which means that less gifted students are to be found there. Matching with this assumption, the pace was slow and the general interest and participation low. The lesson started 10 minutes after the buzzer went because the thought of the day took longer. Thought of the day is a mini presentation each student has to give once or twice a term about any random topic such as 'pick up an instrument'.

2 out of the 3 PSHE lessons on contraception contained the following elements:

- 17th March: Contraceptive methods: Female condom, implant, intra uterine device = IUD, vasectomy, sponge, sexually transmitted illness = STI
- 24th March: BBC film on teenage pregnancy
Quiz about emergency contraception and emergency pill
Part of a film on abortion

At the end of the lesson, Ms. L asked the students to raise their arms if they still felt the need to know more about contraception. As one boy raised his arm, she said: 'Well then you should go and ask your science teacher.'

Year 9, Ms. D, MFL teacher, intended observation

Simultaneously to Ms. L's PSHE lessons in year 9, another year 9 group was taught contraception in PSHE. Ms. D is a young teacher of modern foreign languages. She did not like the idea of being observed in her 3 PSHE lessons on contraception. It was impossible for me to observe any of her lessons on the 10th, 17th or 24th of March because I was observing different lessons at that time. Ms. D gave me some useful information instead. She told me that PSHE teachers are given a pack of sheets from the head of PSHE. From that material, they are supposed to select what they need for 3 PSHE lessons on contraception in year 9.

Ms. D mainly covered different types of contraception in her lessons and included myth or reality exercises. She omitted the topic abortion completely.

The pack of materials given to PSHE teachers for year 9 students contains:

- Introduction and kinds of contraception
- Views about contraception
- Myth or reality
- Panic times, discussion about a girl who had sex when drunk
- Abortion unit, true or false, statements to discuss
- Condomania cards, info about condoms, myths
- Support for young people when pregnant or thinking they are, whom they could ask for help, seeking support statements true or false
- Age and law, majority, marriageability, criminal responsibility, consent
- BBC information about underage and pregnant

Year 10, top set, Mr. M, maths teacher

Mr. M is a maths teacher and has been teaching PSHE for several years. His tutor group consists of about 20 mixed-sex students. This year, he devoted two and a half PSHE lessons to a module on teenage pregnancy. The second and third lesson of that teaching sequence on the 10th and 17th of March 2010 have been observed by me. The topic teenage pregnancy has already been introduced on the 3rd of March. The pace in the observed lessons was very high and students were confronted with lots of facts. Besides, they were constantly asked to give their own opinions and attitudes towards aspects related to teenage pregnancy. Most of the time the students participated actively in the tasks and seemed to be very interested in the subject matter.

The following aspects of sex education have been covered in two and a half PSHE lessons:

- 3rd March: Brainstorming about teenage pregnancy, collect words
- 10th March: Classify these key words into positive, neutral and negative words
True and false statements about pregnancy → students guess, a lot of statistics and numbers included
Agony aunt exercise: Prepare a response to a letter and quote statistics dealt with that lesson

- 17th March: 5 institutions that lead to prejudice against teenage pregnancy
Debate: 2 contradicting arguments are given, the winner is who argued well not whose arguments the students support (use statistics)
Come up with a 3 point action plan how to reduce teenage pregnancy rate (from the points of view of the 5 institutions dealt with above)

When finishing off the topic, Mr. M summed up the PSHE approach on teenage pregnancy as follows:

‘We looked at teenage pregnancy rather from a socio economical point of view, not from an anatomical one, how society reacts to teenage pregnancy, what people think. You will hear about contraception and that stuff in science, that is not part of the PSHE curriculum. However, if you have any questions on that I am happy to discuss it with you. ‘

(Mr. M, PSHE teacher at the Heathland School, 2010)

5.3. Questionnaires for Teachers of Sex Education

As shown in the appendix of this thesis, the questionnaires handed out in the Heathland School are comprised of three sections and contain questions related to teaching sex education. The data set for section A) refers to 27 and for section B) to 21 questionnaires. Part C) consists of some personal details of the respective teachers. Due to the limited number of properly handed back questionnaires, not all questions found in the original questionnaire are worth being analysed in detail and presented at this stage. Likewise, questions which failed to highlight striking results are left aside. Therefore, only a selection of the most interesting results with regard to the focus of this thesis is presented now.

5.3.1. A) Questions Related to Teaching Sex Education in General

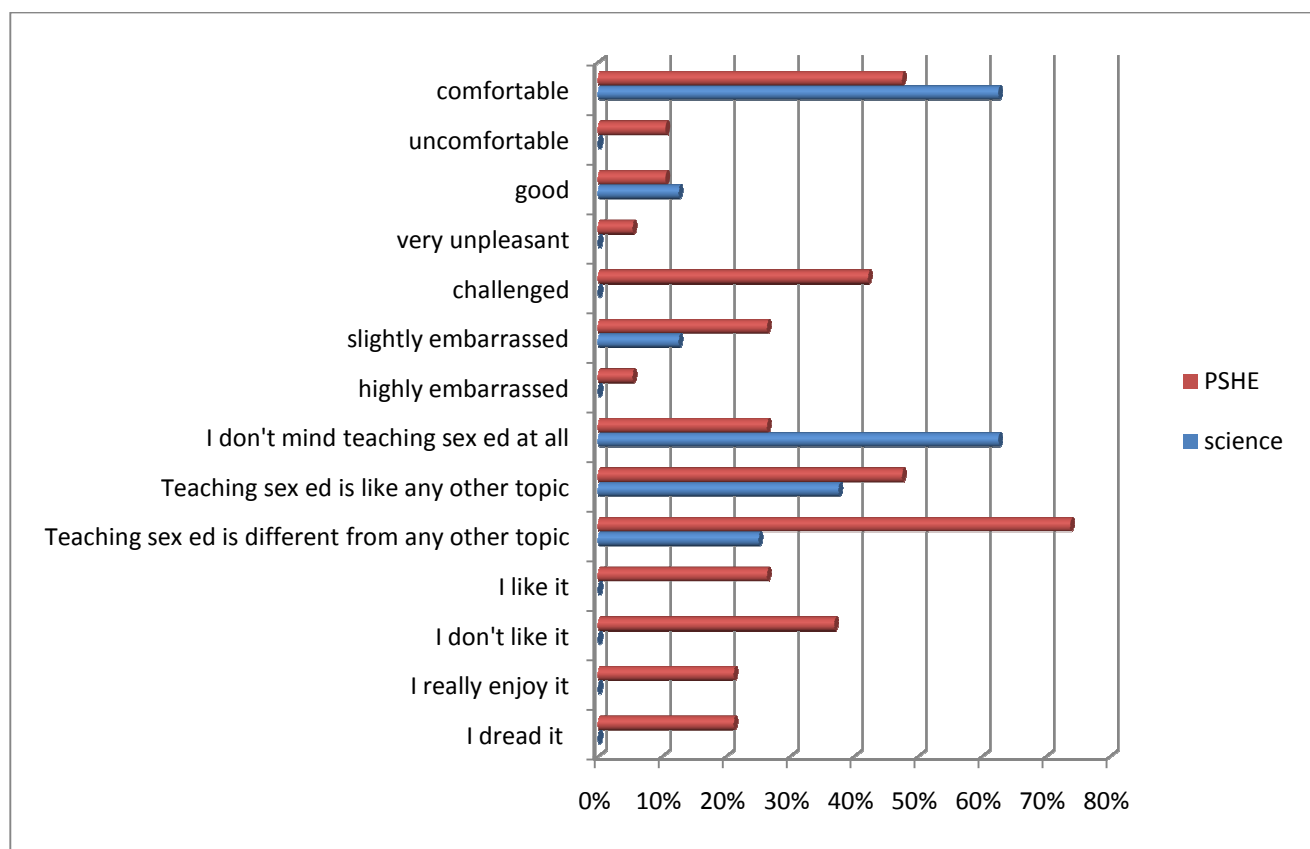
A4) How do you personally feel about teaching sex education? ⇔ Subject

8 science and 19 PSHE teachers have answered this question by ticking one or more of 20 possible answers. The aim is now to find out whether there are strong deviations between the subjects science and PSHE. 5 answers have not been chosen at all and are therefore removed. These answers are: *bad*, *excited*, *nervous*, *always looking forward to teaching sex education* and *uneasy*. Besides, the last answer option *Please state your own opinion* has been neglected because it is of no statistic relevance. Even though the last 6 options are open answers, they are kept in figure 3 and will be dealt with later in more detail.

Figure 3 depicts how often science and PSHE teachers have chosen one of the remaining 14 answer options in per cent. These options are listed along the y-axis. Multiple answers were possible. The respective red upper bar refers to PSHE teachers while the lower blue bar indicates science teachers. Per cents have been used as measure on the x-axis because just 8 science opposing 19 PSHE questionnaires would have lead to falsified results in absolute numbers.

According to figure 3, the most noticeable variations due to subject occur in answer options *challenged*, *teaching sex education is different from any other subject* and *I don't like it*. These three variables have been selected due to their striking results in SPSS when calculating contingency tables. Their asymptotic significance was $\leq 0,05$ which means that the 0-hypothesis had to be rejected at a boundary of 5 %. Thus, a relation between variables *subject* and *how do you feel* could be established for these three answer options.

Figure 3 How do you personally feel about teaching sex education? ⇔ Subject



The strongest relation could be highlighted in the statement *teaching sex education is different from any other subject* with a $\chi^2 = 5,527$ and an asymptotic significance of just 0,019. In other words, 14 out of 19 PSHE teachers (= 73,7 %) agreed on that option while solely 2 out of 8 science teachers (= 25 %) did so. Answer option *challenged* shows a just slightly less obvious result with a $\chi^2 = 4,787$ and an asymptotic significance of 0,029. No one of the 8 science teachers (= 0 %) opposed to 8 out of 19 PSHE teachers (= 42,1 %) feels challenged when teaching sex education. The third highest relation can be found in answer option *I don't like it* where $\chi^2 = 3,979$ and the asymptotic significance is 0,046. These numbers result from 0 science teachers (= 0 %) and 7 out of 19 PSHE teachers (= 36,8 %) who have ticked this answer option.

A fourth variable should be mentioned as well namely *I don't mind teaching sex education at all*. Even though the asymptotic significance of 0,075 is $\geq 0,05$ and $\chi^2 = 3,161$, the results in per cents are still interesting. 5 out of 8 science teachers (= 62,5 %) as opposed to just 5 out of 19 PSHE teachers (= 26,3 %) claim that they do not mind teaching sex education at all. These 4 answer options just mentioned will be further discussed in section

6.3.1 *Questions Related to Teaching Sex Education in General.* The remaining 10 answers show an asymptotic significance of $\geq 0,1$ and will therefore not be dealt with any further.

Furthermore, some PSHE teachers added personal remarks to question A4 of the questionnaire. Only the last out of 6 comments shows a neutral attitude towards sex education. The remaining answers are characterized by uncertainty and dislike.

- 'Teaching sex education is different from any other topic because it is not my area of teaching.
- Teaching sex education is different from any other topic because we have not been trained to teach this.
- I don't like it because it should be taught by someone who has medical knowledge and should have been trained in it.
- I dread it because I do not know the best way to deliver it.
- I don't mind it, but would prefer not to teach it.
- I have no problem teaching this topic as it is reality and all of us learn about it from the experience.'

(Exemplary comments from some PSHE teachers at the Heathland School, 2010)

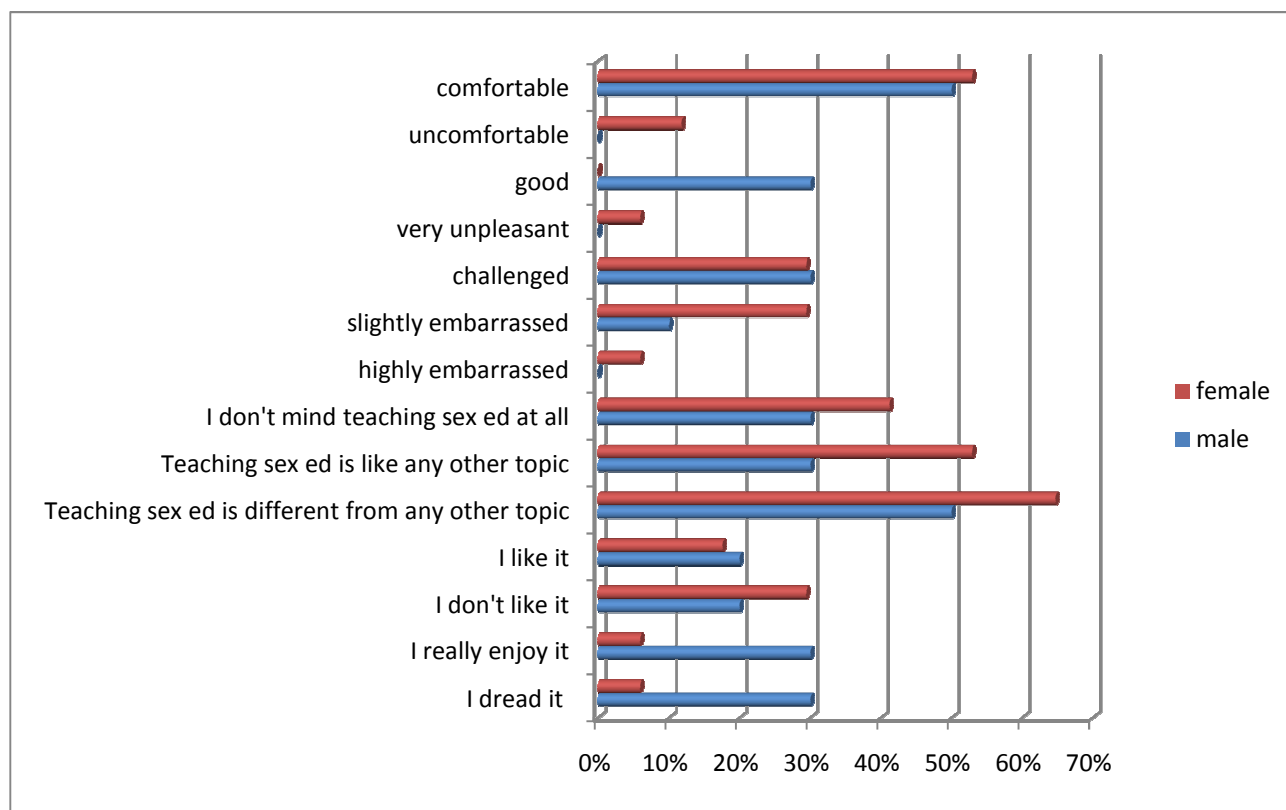
A4) How do you personally feel about teaching sex education? ⇔ Gender

In order to find out whether the answers for question A4) differ due to gender to the same extent as due to subject, further calculations were necessary. The 27 questionnaires under analysis have been filled in by 10 male and 17 female teachers of science or PSHE. 4 male and 4 female science teachers as well as 6 male and 13 female PSHE teachers form the total number of 27 teachers of sex education who handed in the questionnaire. As 27 is already a small number for statistical analyses, more detailed analyses such as answers according to gender per subject are not carried out.

It is obvious at first sight that that the gap between female and male answers in figure 4 is smaller than between science and PSHE. Solely answer option *good* has a strikingly low asymptotic significance of 0,017 and a $\chi^2 = 5,738$. As highlighted in figure 4, 3 out of 10 male teachers (= 30 %) compared to 0 out of 17 female teachers (= 0 %) feel good about teaching sex education. The last two answer options *I really enjoy it* and *I dread it* have both been confirmed by 3 out of 10 male teachers (= 30 %) and 1 out of 17 female teachers (= 5,9 %). The remaining 11 categories show no relevant divergences. By way of example, answer

options *comfortable*, *challenged* and *I like it* have been chosen almost as often by male teachers as by female teachers.

Figure 4 How do you personally feel about teaching sex education? ⇔ Gender



5.3.2. B) Questions Related to Science or PSHE in 2009/2010

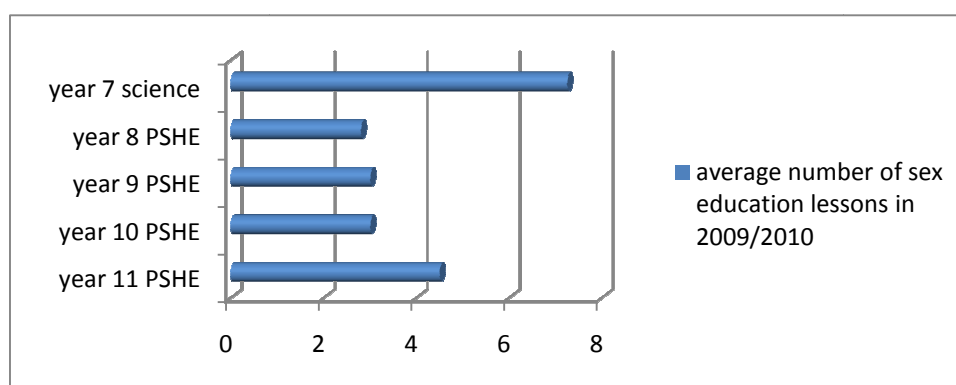
As the questions dealt with in section B) could only have been answered by teachers who actually taught sex education in 2009/2010 at the Heathland School, the original number of 27 questionnaires is now reduced to 21. These 21 data sets result from information of 4 science and 17 PSHE questionnaires. All 4 science questionnaires derive from year 7 classes. The PSHE questionnaires combine 6 year 8, 4 year 9, 5 year 10 and 2 year 11 groups.

B3) How many lessons did you devote to sex education in 2009/2010? ⇔ Classes

In order to find out how many lessons PSHE and science teachers spend on sex education, the data set compiled of 21 questionnaires was grouped into years and the average number of lessons has been calculated. Figure 5 shows that science students in year 7 receive with 7,25

lessons per year the largest amount of sex education, followed by year 11 PSHE pupils with 4,5 lessons. Year 9 and 10 PSHE students get to hear about sex education in 3 lessons per year while year 8 students have on average 2,8 lessons.

Figure 5 Average number of sex education lessons in 2009/2010

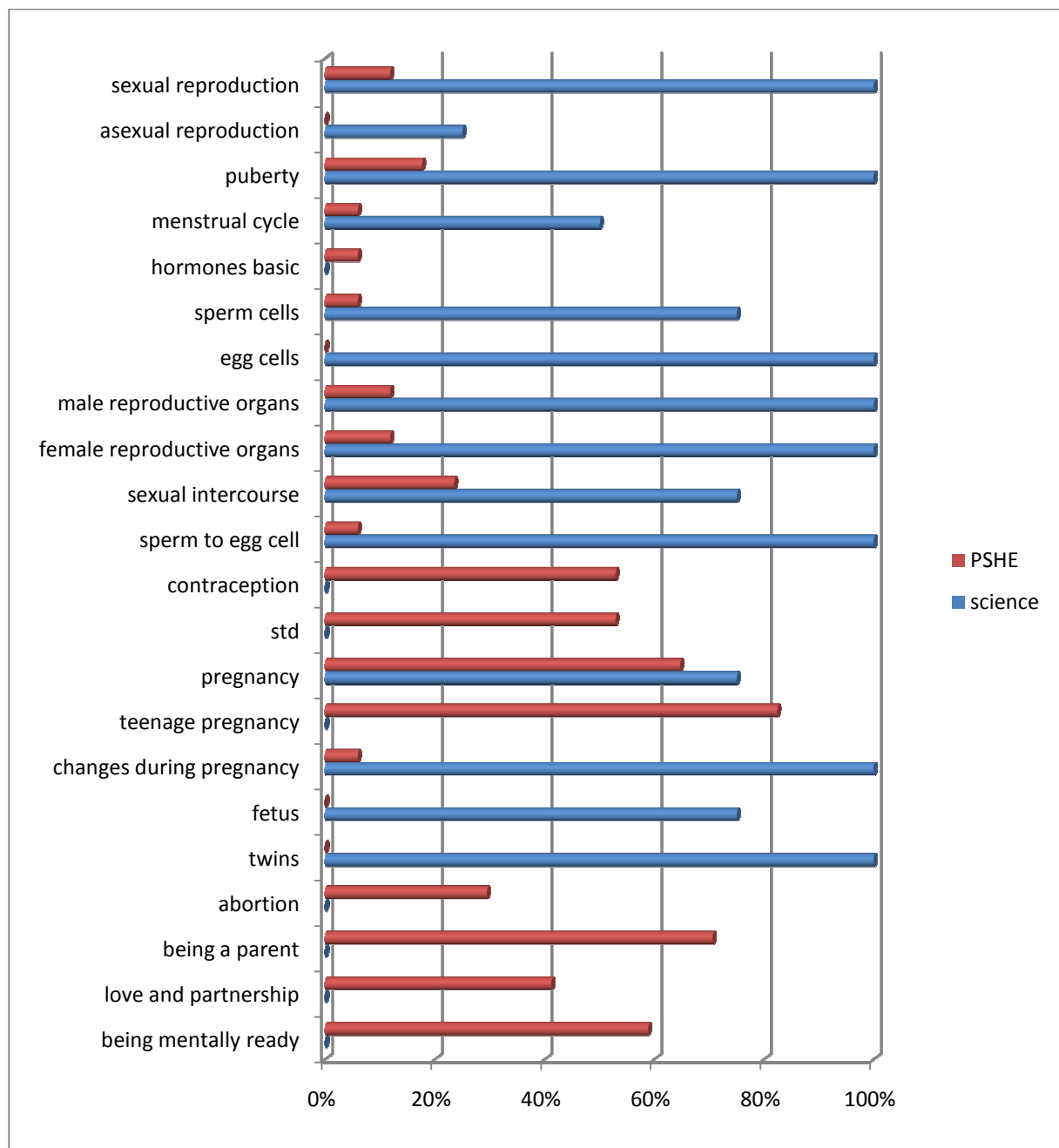


B4) Which topics did you cover this school year? ⇔ Subject

As described in section 5.1 *Comparison of Sex Education Curricula*, science and PSHE cover different aspects of sex education. In order to find out whether sex education teachers at the Heathland School stuck to the curriculum of their subject, topics covered in 2009/2010 and subject are opposed. It can be expected that strong correlations between variables *topics covered* and *subject* will be found. The following answer options have not been ticked at all and are therefore excluded from further analysis: *hormones detail*, *prenatal diagnostics*, *genetic disorders*, *premature babies*, *disabled babies*, *giving birth* and *other*. The remaining 22 answer options are to be found on the y-axis of figure 6. The x-axis indicates in per cent how many teachers of the respective subject have dealt with the individual topics in 2009/2010.

As clearly visible in figure 6, a broad distribution of topic areas according to science or PSHE fulfils our expectations. The upper red bar indicates topic areas liked to PSHE while the lower blue bar represents science. With the exception of *pregnancy* and also, but to a lesser extent *sexual intercourse*, all topics can be clearly assigned to either science or PSHE. Some answer options such as *sexual reproduction*, *egg cells*, *male and female reproductive organs*, *sperm to egg cell*, *changes during pregnancy*, *fetus* and *twins* even have the smallest possible asymptotic significance of $\leq 0,01$ and therefore confirm the strongest possible relationship between variables *topics covered* and *subject*.

Figure 6 Which topics did you cover this school year? ⇔ Subject

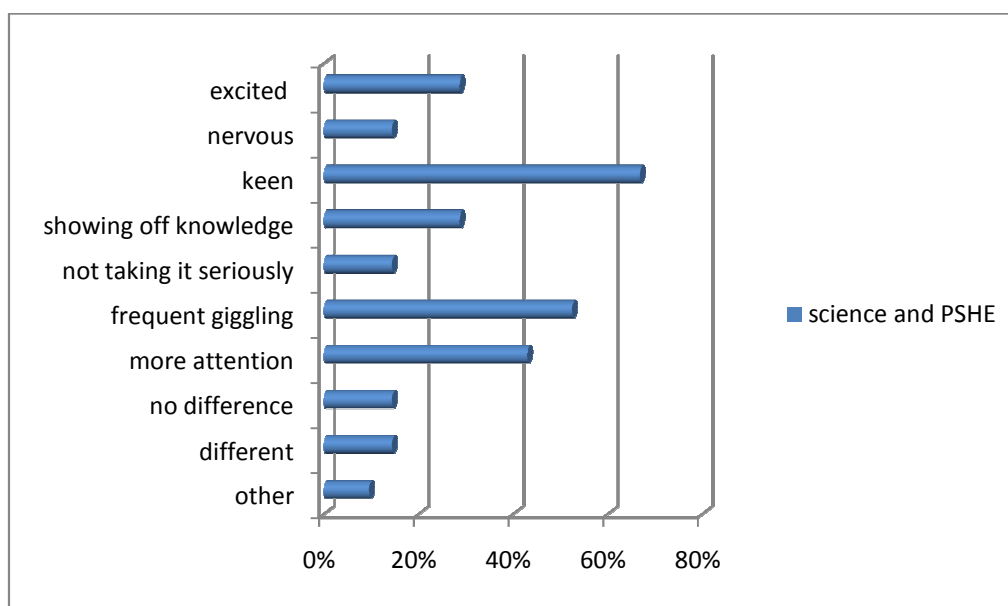


B5) How would you describe the students' reactions? ⇔ Science and PSHE combined

A comparison between variables *students' reactions towards sex education* and *subject* did not deliver striking results when considering the values for asymptotic significances in SPSS. So, science and PSHE are summed up and treated together now in order to show the distribution of students' reactions when dealing with sex education. Answer options *extremely keen*, *bored*, *not interested*, *not daring to talk* and *more quiet than usual* have not been selected once and are therefore excluded.

Figure 7 shows that the answer options ticked most often are *keen* with 66,7 % (= 14 out of 21 teachers), *frequent giggling* with 52,4 % and *paying more attention than usual* with 42,9 %. Answers *excited* and *showing off their previous knowledge* were ticked in 28,6 % of sex education lessons. The remaining 5 options do not show particularly high percentages of 14,3 and 9,5.

Figure 7 How would you describe the students' reactions and general behaviour?



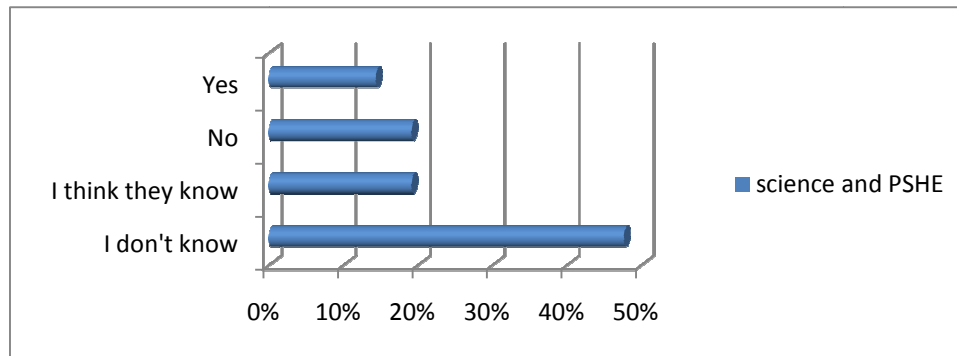
B7 and B8) Do most parents know of their right to take their children out of sex education lessons and did any parents do so? ⇔ Science and PSHE combined

The head of science at the Heathland School pointed out that parents have the right to take their children out of sex education lessons. In order to find out whether this is a theoretical means or really happens, the following two questions have been added to the questionnaire:

- Do most parents know of their right to take their children out of sex education lessons?
- Did any parents take their children out of this year's sex education lesson in science or PSHE?

Looking at figure 8, it turns out that 47,6 % of 21 science and PSHE teachers do not know whether parents know of their right to take children out of sex education lessons. The remaining half is divided almost equally in answer options *yes*, *no* and *I think most parents know that*. Besides, it did not happen in any of the 21 data sets that parents took their children out of this year's sex education lessons.

Figure 8 Do most parents know of their right to take their children out of sex education lessons? ⇔ Science and PSHE combined

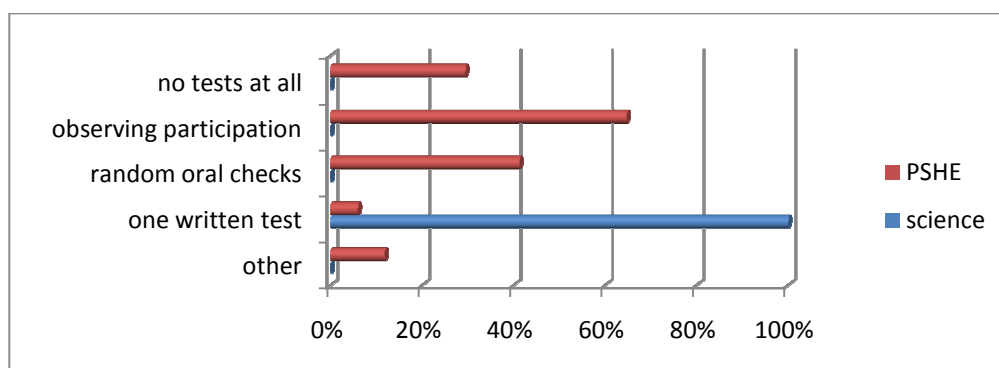


B12) In which way(s) did you test your students' knowledge? ⇔ Subject

It has been pointed out already that science and PSHE differ in terms of testing. As highlighted in 6.1.3 *Contents*, there is no obligation for tests in PSHE as opposed to science. So, one could expect that comparing *ways of testing* and *subject* will support that assumption. Options *short written tests* and *oral tests for each student* have not been ticked once in the questionnaire and are therefore neither included in the calculations nor depicted in figure 9.

As obvious in figure 9, all 4 science teachers (= 100 %) confirm that they set *one written end of topic test* about sex education for their students. So, the smallest possible asymptotic significance of $\leq 0,01$ at a $\chi^2 = 15,812$ support a very strong relationship between variables *testing* and *subject*. Furthermore, *observing participation* has a $\chi^2 = 5,435$ and an asymptotic significance of just 0,02. In other words, 11 out of 17 PSHE teachers (= 64,7 %) agreed that they observe students' participation in order to test their knowledge about sex education. Categories *no tests at all* and *random oral checks* were not chosen by any science teacher but by 29,4 % and 41,2 % of PSHE teachers. 2 out of 17 PSHE teachers (= 11,8 %) named *other* ways of testing such as *collecting and evaluating students' booklets*.

Figure 9 In which way(s) did you test your students' knowledge? ⇔ Subject



6. Discussion

This section discusses the key findings from the comparison of sex education curricula, observations at the Heathland School and results from the questionnaires for science and PSHE teachers. In three steps, it provides an analysis and interpretation of the results which were already presented graphically in section 5.3 *Questionnaires for Teachers of Sex Education*.

6.1. Comparison of Sex Education Curricula

A number of differences are described in this section when comparing the Austrian Lehrplan for sex education with the English national curriculum. First and foremost, biology is mainly responsible for sex education in Austria whereas in the United Kingdom, the two subjects science and PSHE cover it collaboratively. This separation leads on to question the status of PSHE. Furthermore, the Lehrplan explicitly highlights in which year specific topics should be dealt with while the national curriculum simply categorises age groups composed of 2 or even 3 years. Last, the two curricula vary in terms of topics dealt with. Even though a high number of aspects of sex education are mentioned in both curricula, there are some which are only to be found in one or the other.

6.1.1. Sex Education in Science and PSHE

The most obvious difference between the Austrian Lehrplan and English National Curriculum is the separation of sex education into two subjects namely science and PSHE in England whereas biology is the only subject covering sex education in Austria. As already mentioned in 2.3.3 *Sex Education in England*, the subject science is a combination of chemistry, physics and biology. On the one hand, the national curriculum for science is compulsory in Wales and England which means that schools have to follow it. On the other hand, PSHE is based on a non-statutory programme of study. Therefore, PSHE teachers are not obliged to follow these recommendations because they are not required by law. It depends to a big part on individual school policy whether the curriculum for PSHE is followed strictly or not. Summing it up, one can assume that the curriculum for science is followed in England and Wales. The guidelines for PSHE, however, are not obligatory. Therefore it might happen that not every

child in England gets to hear about contraception or changes at puberty at school simply because this is part of PSHE and not science. In Austria, it is mandatory to follow the frame of the Lehrplan but there are few or no checks whether biology teachers really stick to it.

Furthermore, teachers from any subject will most likely have to teach PSHE sooner or later in their teaching career. In most schools, PSHE teachers are the respective form teachers or tutors who accompany their form from the first to the last year. These teachers have very different professional backgrounds such as languages, sciences or physical education to name just a few. Nevertheless, they all have to teach PSHE according to the school policy, usually following the guidelines and materials presented by the head of PSHE. Assuming the ideal situation that the PSHE teacher who is dealing with sex education is trained and qualified in sciences, there is nothing to question. If, however, the PSHE teacher comes from any other subject background, the situation is totally different. As he or she is not trained in science, the PSHE teacher might not be or feel competent enough to teach such a delicate topic as sex education. He or she might even be embarrassed discussing the subject matter and therefore, trying to shorten or avoid sex education as much as possible. It goes without saying that there are still a number of PSHE teachers who are either trained in science or good at teaching sex education, after all. So, it would be unfair to tar all PSHE teachers with the same brush. Some of them might be even better at mediating that delicate topic to their form than individual science teachers. But still, the majority of PSHE teachers are less professional than science teachers when it comes to the topic of sex education. Besides, there are usually no tests and not even grades in PSHE while tests are obligatory in science. This situation makes it really hard for external or internal observers of PSHE lessons to reconstruct how much really stuck in pupils' heads. The lack of a competitive component in PSHE might lead to the situation that PSHE is not taken as seriously as other subjects. If necessary, it is PSHE which is cancelled for external lectures or various exams from other subjects. Chris Walsgrove, head of PSHE at the Heathland School, also confirmed this often rather low status of PSHE at various schools. There are voices who want to give PSHE more weight and importance. In the government response to the 5th annual report of the teenage pregnancy advisory group (2009) for example, it is recommended that the

‘Government should make Personal, Social and Health Education (PSHE) a statutory subject at all key stages, and ensure it is also delivered in non-school settings so that all children and young people get good quality Sex and Relationships Education.’

However, making PSHE a statutory subject is still just a recommendation and there are no evident hints that PSHE will really gain in importance and status.

For all the reasons mentioned in that paragraph, one can assume that the professional competence of sex education in PSHE is less than in science. Thus, the comparison of contents of sex education in 6.1.2 will give more weight to aspects taught in science than in PSHE. But before dealing with actual topics, a brief section is devoted to differences between Austria and England in the specification of age groups.

6.1.2. Age Groups

A second striking difference is to be found in the way various topics are assigned to more or less specific age groups. The Austrian Lehrplan for AHS clearly states which aspects of sex education have to be covered in year 1, 4, 6 and 8. It is obvious at first sight of which topics any AHS pupil in Austria at any given age should have already heard about. Contrary, the national curriculum in England prefers a classification into age groups and labels them key stage 3 for 11-14 year olds and key stage 4 for 14-16 year olds. It is not clear in which exact year specific aspects of sex education should be dealt with.

Furthermore, the chronological organisation of various subtopics might vary a lot between different schools. Proceeding from an ideal situation, in which any pupil in England stays in the same school during key stage 3 and 4, having the same biology and PSHE teacher, there are not any obvious drawbacks. If, however, a pupil has to swap schools and gets new teachers, the situation is totally different. It might happen that he or she misses out on many aspects of sex education because his or her old school would have taught it later in for example year 9 while the new school already dealt with it at the beginning of year 8. Taking these aspects into account, one could claim that the Austrian Lehrplan is more precise in regulating age groups than the national curriculum.

6.1.3. Contents

Lastly, the two curricula vary enormously in terms of aspects of sex education to be dealt with. Some elements are mentioned in both, biology and science or PSHE guidelines but described in slightly differing words. Others are only to be found in either the Lehrplan or the national curriculum for science or PSHE. The focus of the following two sub-sections is on elements which are only part of one of the two curricula. As established above, one should bear in mind that sex education aspects dealt with in PSHE are mostly taught by non-expert

teachers with regard to science. There is usually no obligation for tests in PSHE, either. Therefore, one could claim that sex education in PSHE is taught to a probably less professional extent. As a result, the focus is now rather on biology versus science than PSHE.

6.1.3.1. Contents AHS Unterstufe ↔ Key Stage 3

Briefly looking for similarities first, *reproductive organs*, *menstruation* and *conception* are part of the AHS Lehrplan for year 1. These topics can be regarded as equivalent to *human reproductive cycle* and *fertilisation* in science at key stage 3. As for differences, the Lehrplan for AHS Unterstufe mentions *giving birth* and *sexual abuse and prophylaxis*. These two aspects are neither to be found in the national curriculum at key stage 3 for science nor for PSHE. One could, however, argue that *giving birth* is included in the topic *pregnancy* in PSHE even though it is not explicitly mentioned. But there is no hint whatsoever on *sexual abuse and prophylaxis* in the national curriculum at key stage 3. Sexual abuse is a huge problem and big taboo in many societies. It affects children and adolescents more often than most people would expect. So, the lack of a profound prophylaxis of sexual abuse at school can be considered an immense weakness of the national curriculum at key stage 3.

Changing the perspective, *foetal development* is to be dealt with in science at key stage 3 but not part of the AHS Unterstufe Lehrplan. *Foetal development* is likely to be included in the topic *pregnancy* in year 1 AHS, though. In addition, *embryonic development* is mentioned later in the AHS Oberstufe Lehrplan for year 6. Furthermore, *relationships*, *family life and bringing up children* and *gender and sexual orientation* are part of PSHE but not described in the Lehrplan for biology. With the exception of *sexual orientation*, these sub-topics belong to sex education in a wider sense but are not directly related to aspects of teenage pregnancies such as sexual activity or contraception. Therefore, it is not necessary to criticise the lack of these two topics in the Lehrplan because they are rather side aspects than key elements of sex education. *Sexual orientation*, however, should definitely be included in the Lehrplan because it strongly influences sexual behaviour and sexuality as such.

Another striking fact is that all elements of the Lehrplan to be dealt with in year 4 biology are to be found in the national curriculum for PSHE instead of science. These crucial aspects are *sexuality*, *contraception and pregnancy* and *HIV prophylaxis* and can be directly related to teenage pregnancies. The weak spots of sex education in PSHE such as less professionalism or limited intensity have been highlighted above. Bearing them in mind, it seems pedagogically irresponsible to leave such key elements of sex education to PSHE

instead of science. English children might not get enough information about it or miss out on contraception and pregnancy completely at key stage 3. It goes without saying that a lack of knowledge about contraceptive methods could directly lead on to a high rate of teenage pregnancies. In Austria, these aspects are dealt with in year 4 at AHS Unterstufe. Thus, Austrian pupils aged 13 or 14 get more information about *sexuality, contraception and pregnancy* and *HIV prophylaxis* from their biology lessons at secondary school level than pupils in England of the same age. Likewise, *puberty* is an element of the Lehrplan for year 1 in biology but not included in the national curriculum for science at key stage 3. It is, however, incorporated in PSHE at key stage 3 with the negative connotation of a probably less professional approach towards *puberty* in PSHE than in science.

Summing it up, there are two serious differences between the contents of the Lehrplan for AHS Unterstufe and the national curriculum at key stage 3. First, *sexual abuse and prophylaxis* is highlighted in the Lehrplan but not in the national curriculum. Second, *gender and sexual orientation* are aspects of the national curriculum but not of the Lehrplan. All other curricular differences for students aged 10-14 are less huge and less grave. So, one cannot tell for good whether the Austrian or English curriculum for sex education for students at that age group is better.

6.1.3.2. Contents AHS Oberstufe ⇔ Key Stage 4

At a first glance, the elements of the two curricula under research seem to differ enormously. Having a closer look, however, there are a number of similarities to be found. To start with the focus of this research, *contraception* is not mentioned directly in any of the two curricula. One could argue that *contraception* has already been an important aspect of the Lehrplan AHS Unterstufe and national curriculum at key stage 3 in PSHE. Besides, it is not farfetched to assume that contraception is part of the topic *sexuality*. The Lehrplan for AHS Oberstufe year 6 includes *the phenomenon of sexuality* and *sexual ethics* whereas these topics are not dealt with in science at key stage 4. *Sexual activity* is part of PSHE at key stage 4, though. As highlighted previously, topics dealt with in PSHE instead of science suffer from general disadvantages of the subject PSHE and can therefore not be taken equally serious as topics in science. Nevertheless, it goes without saying that it is still better that *sexual activity* is dealt with in PSHE at key stage 4 than completely neglecting it.

Furthermore, *modern life sciences such as stem cell research or new reproductive methods* are described in the Lehrplan for year 8 and *reproductive manipulation* in year 6. These aspects are closely related to *heredity and genetics* to be dealt with in science at key stage 4. However, it is to a big part up to the teacher which aspects of *modern life sciences* are presented and how intensely *heredity and genetics* are being taught. In addition, one might find similarities between the AHS Oberstufe year 6 topics *immune system, disorders, allergies, HIV* and between *hormones* in science at key stage 4. Even though some aspects of these topics resemble each other, it is too farfetched to claim that *immune system, disorders, allergies, HIV* are identical to the topic *hormones*.

Looking for striking differences now, the Lehrplan for year 6 covers *embryonic development* which is neither mentioned in key stage 4 science nor in PSHE. However, *foetal development* has already been mentioned in science at key stage 3. Therefore, one cannot claim that *embryonic development* has been completely neglected. As mentioned above, even though *reproductive manipulation, immune system, allergies and HIV* in year 6 biology might be related to *hormones* in science at key stage 4, they are not explicitly mentioned in the national curriculum key stage 4 and are therefore probably not dealt with extensively. Likewise, it is completely up to the teachers which aspects of *modern life sciences* are presented in year 8 AHS. So, one cannot draw a direct comparison to the topic *heredity and genetics* in science at key stage 4.

Changing the perspective, the national curriculum for science at key stage 4 includes *adaption, variation and evolution*. These aspects are neither mentioned in the Lehrplan for AHS Unterstufe nor Oberstufe. The issue-areas *heredity and genetics* and *hormones* are not obvious elements of the Lehrplan, either. In addition, side aspects of sex education like *relationships, family and parenting skills* presented in PSHE key stage 4 but are not dealt with in the Lehrplan for biology. Obviously, there are by all means a number of aspects of sex education in a wider sense which are part of the national curriculum but not of the Austrian Lehrplan. So, one cannot claim that the quality of the Lehrplan for sex education is generally better or more varied than the national curriculum.

Summing it up, the comparison between the curricula for AHS Oberstufe biology and key stage 4 science or PSHE highlights that there are more differences than similarities. Some aspects could be related to others but it is mostly up to the teachers how intense and with which focus huge issue-areas such as *modern life sciences* or *heredity and genetics* are dealt with. Drawing the connection to teenage pregnancies, *contraception* is not explicitly mentioned in any of these 3 curricula under research. It is very likely to be included in

sexuality in the Lehrplan for AHS Unterstufe in year 6 and in *sexual activity* PHSE at key stage 4. Thus, the disadvantages of biological topics incorporated in PSHE but taught by a teacher without scientific background are obvious, again. *Sexuality and contraception* are basic elements of sex education when talking about teenage pregnancies. So, the conclusion might be drawn that the Austrian Lehrplan is more useful when it comes to preventing unwanted teenage pregnancies than the English national curriculum.

As an afterthought, the national curriculum does not give any more guidelines on how intense individual topics should be dealt with in class in terms of time management and depths. But this goes also for the Austrian Lehrplan. As too many regulations for teachers prevent individuality and the possibility to focus on pupils' needs, the comparatively high degree of freedom in teaching should not be criticized at this stage.

6.2. Observations at the Heathland School

This passage compares and discusses the findings from section 5.2. The topics covered in the observed lessons are compared with the national curriculum for science and PSHE. So, it will become apparent whether the sex education teachers under observation stick to the guidelines from the national curriculum or not. In addition, striking elements or features of the lessons will be discussed as well as some controversial statements of teachers.

6.2.1. Observations of Science Lessons

Two sequences of sex education lessons, one in a science top set and one in a bottom set, have been observed. In addition, Ms. P's approach is added to have a further point of reference. Before analysing the individual sequences, let us bear in mind what the national curriculum for science at key stage 3, which means for students aged 11 – 14 suggests: 'The human reproductive cycle includes adolescence, fertilisation and foetal development'.

Year 7x2, top set, Mr. L, science teacher

Mr. L taught a well-matched sequence of 8 lessons and a test about sex education to his year 7 top set. In retrospect, the students were keen and asked many questions. Besides, they were encouraged to use scientific terms when asking or answering questions. The level of Mr. L's teaching sequence on sex education was demanding but still adequate for that age group and set. It goes without saying that students of a lower or bottom set would have been over-challenged with the pace and intensity of Mr. L's lessons. Most students of 7x2 coped well with his demanding teaching style.

The topics dealt with in that sequence cover all aspects mentioned in the national curriculum for science at key stage 3. The key elements 'adolescence, fertilisation and foetal development' have been dealt with in detail and in a scientifically appealing way. One could even claim that by extending the contents and breadth of his lessons, he outmatched the basic guidelines given in the curriculum by far. As contraception is not explicitly stated in the curriculum, it has not been taught in 7x2, either.

Finally, an end of topic test has been carried out. The science department at the Heathland School provides several models of an end of topic test in the shared area on teachers' computers. It is up to the science teachers whether they use the whole end of topic

test or merely some aspects of it. Mr. L set a 30 minutes test for the 5th of February. He used the first two pages of the test from the shared area because the second two pages would have been too much and too difficult for his set. So, the test was mainly about labelling male and female reproductive organs, sex cells, fertilisation, implantation and the CVS test, which is short for chorionic villus sampling. Furthermore, he added some questions on cells to the existing test. One could get the first impression that only very little of the topics taught in the previous lessons have actually been tested. However, it is impossible to test all aspects of sex education in 30 minutes. So, it is completely normal and justified that the teacher sets priorities when it comes to testing. In retrospect, Mr. L explained that a few students performed very well and a few performed very badly. But as the majority was doing quite ok, he considered the test as appropriate for his set.

Year 7y3, bottom set, Ms. C, science teacher

Ms. C's teaching sequence on sex and science consisted of 7 lessons and a test. The contents of her lessons matched well with the topics highlighted in the national curriculum for science at key stage 3. All key elements have been included and some even extended. Like in Mr. L's lessons, contraception has not been dealt with. In contrast to Mr. L's top set, Ms. C taught a bottom set which usually consists of less gifted students. So, it comes as no surprise that pace, intensity and scientific level of her lessons were lower than in Mr. L's teaching sequence. Likewise, the students themselves seemed to ask less complex questions and required more time to understand various concepts. By using lots of repetitive elements and short interactive games Ms. C nevertheless managed to get her students' attention and convey the basic elements of sex education in an adequate way.

After the Easter holidays, an end of topic test has been carried out in 7y3. Similar to Mr. L in his top set, Ms. C used a number of aspects of the exemplary test from the shared area and added some of her own questions. As one might have expected, her test was all together easier than the test set by Mr. L because students in a bottom set are generally supposed to be less gifted than those in a top set.

Before finishing off the analysis of Ms. C's lesson, there is one more aspect worth mentioning. On the 31st of March, Ms. C started the lesson by saying 'we start with something you should have done in PSHE anyway, puberty and changes in puberty'. Immediately, the learners explained that they could not get through all puberty in PSHE because they had assemblies so often instead of PSHE. As Ms. C did not know whether this was really true and

how much knowledge about puberty stuck in the students' heads anyway, she devoted more time than planned to the topic puberty. This example leads to the conclusion that in the end, it is the science teacher and not the PSHE teacher who makes sure that key elements of sex education have been covered and understood by the students.

Year 7, top and bottom set, Ms. P, chemistry teacher, intended observation

Ms. P taught sex education to a top and a bottom set in year 7. The topics she said she had covered match with the ones highlighted in the national curriculum for science at key stage 3, which are 'the human reproductive cycle includes adolescence, fertilisation and foetal development. Apart from cervix cancer in the top set, further typical topics for sex education such as sexually transmitted diseases and contraception have been neglected. Strictly speaking, they are not mentioned in the national curriculum and therefore do not need to be taught at that stage.

When asking Ms. P why she did not include any contraceptive methods, her answer was: 'I presented sex as a means to having children. So contraception wouldn't fit in, and it is not necessarily part of their [the children's] book'. Taking the curricular background and contents of students' biology books into account that answer is completely justified.

6.2.2. Observations of PSHE Lessons

Year 7, Ms. K, MFL teacher, intended observation

Ms. K intended to teach 2 lessons on puberty to the girls of her year 7 tutor group. Due to various reasons, the lessons had to be postponed twice and it was very likely that puberty would not be covered at all that year. *Physical and emotional change and puberty* are mentioned in the PSHE curriculum and should be taught at key stage 3. So, neglecting puberty in year 7 does not automatically mean that the curriculum has not been fulfilled because key stage 3 covers year 7, 8 and 9. A dutiful PSHE teacher could teach puberty in year 8 if he or she did not find the time for it in year 7. However, there might be no time in the year 8 timetable to squeeze in puberty. Besides, a student swapping school after year 7 might miss out on the topic puberty if it has already been taught in his new school the previous year.

As I see it, Ms. K's intended 2 lessons on puberty are a good example for the generally low status of PSHE at the Heathland School and at many other schools in the UK. Only some minutes before getting started with the first of her two lessons on puberty, Ms. K got to know that it has been cancelled. The reason was that two policemen have arrived at the Heathland School in order to instruct all year 7 students about safety on their way to school. As the topics for the weeks to come have already been fixed Ms. K could not squeeze in puberty anywhere before the Easter holidays. So, the lessons were postponed to the end of summer term. PSHE teachers have 1 or 2 weeks at the end of summer term to finish unsolved stuff. As there are usually many topics to be put in these two weeks, Ms. K admitted that she was not sure if there was any time left for puberty. If not, there was still the possibility to postpone puberty to year 8. But as there are a number of new topics to be dealt with in year 8, it is uncertain whether Ms. K's tutor group gets to hear about puberty at all.

Year 8, Mr. B, maths trainee

The key elements of Mr. B's lessons on sex education were pregnancy, contraception, first sexual activity and sexism. These topics match well with some of those mentioned in the national curriculum for PSHE key stage 3 namely 'sexual activity, contraception, pregnancy, [...] gender and sexual orientation'. So, Mr. B taught in line with the non-statutory guidelines for PSHE at key stage 3.

Given that he is a young and less experienced maths teacher, Mr. B handled the delicate topic of sex education surprisingly well. He started off the lesson saying 'today we are gonna use words as vagina, penis, egg, sperm, [...] now is the time that you might start thinking about sex'. Then, he quickly explained the topics of the lesson. By actually saying aloud the words vagina and penis right in the beginning, some students immediately giggled or felt a bit embarrassed at first. But as these words have already been said aloud right from the start of the lesson, it felt completely normal to hear them throughout the rest of the lecture.

Mr. B strictly followed his well-prepared power point presentation and did not seem to be insecure at any stage of the lesson. However, his lecture could have been more interactive, involving the students to a greater extent. The overall impression of Mr. B's first lesson on sex education in PSHE was very good. He seemed competent enough to teach sex education to a year 8 tutor group even without having any scientific teacher training.

Year 8, Ms. G, food & textiles teacher

Teenage pregnancy and homosexuality were the two main elements of Ms. G's sex education lessons in her year 8 tutor group. Teenage pregnancy is not literally stated in the curriculum for PSHE key stage 3. But it goes without saying that it is an essential aspect of the topic 'pregnancy' as such, which is part of the curriculum. Likewise, homosexuality belongs to the umbrella term 'sexual orientation' which is stated in the curriculum. So, both key elements of Ms. G's 2 lessons on sex and sexuality in her year 8 tutor group correspond to what the non-statutory curriculum for PSHE at key stage 3 suggests.

With regard to teenage pregnancies, Ms. G made her students think about how having a baby would affect their future plans. She added that she focused 'on the impact it would have on them and their life in the future [...] thinking about how their ambitions for what they want in the future would change'. As I see it, this approach is really useful. Most girls are aware of the problems adolescent pregnancies might bring for others but do not think about how it would actually affect their own lives. Making them realize the dramatic change a baby would bring in their own lives might impress the girls more than just hearing stories from other young girls, who are noting more but strangers to them. Nevertheless, Ms. G could have added some facts and figures about teenage pregnancy as such in order to improve the girls' general knowledge about that topic as well as their awareness.

Year 9, bottom set, Ms. L, MFL teacher

Contraception and pregnancy are elements of the non-statutory curriculum for PSHE at key stage 3. So, teaching these topics in a year 9 tutor group perfectly makes sense. Teenage pregnancy and abortion as such are not explicitly mentioned in the curriculum but fit in the topic area very well. Even though the topic contraception was taught according to the curriculum for PSHE, I got the impression that it has not been taught to a satisfactory extent. The reasons for that assumption are given below.

When observing the lesson on the 24th of March, I got the impression that the teacher avoids face to face explanations or elsewhere common question and answer session. Instead, she played two short films within one 50 minutes lesson that even started 10 minutes later. Besides, they questions in the quiz were not solved together orally in class but answer sheets have been handed out afterwards and the students were asked to assess themselves. So, Ms. L hardly ever said words related to contraception or pregnancy aloud. That personal impression

fits perfectly well with Ms. L's statement before the lesson: 'I don't like teaching sex education at all and I don't feel confident doing it'.

In addition, as one boy raised his arm to get to know more about contraception, she told him to go and ask his science teacher. Even though it was at the end of the lesson, she could have offered him some kind of help or postpone her answer to another lesson. Obviously, the teacher was relieved to get sex education over with and did not want to spend any more time and effort on that subject matter. It seems as if the lesson on the 24th of March was a perfect example for one of the main weaknesses of sex education in PSHE, namely that it is taught by non-experts, teachers who are not trained in teaching sex education. It comes as no surprise that a less qualified and less experienced teacher struggles when teaching such a delicate topic as sex education. Instead of shortening the contents and reducing actual teaching sequences, it would probably be a better tactic to ask more experienced teachers or science teachers for advice.

Year 9, Ms. D, MFL teacher, intended observation

The elements of Ms. D's lessons on contraception match with the recommendations from the national curriculum for PSHE at key stage 3. As it was impossible for me to observe any of her lessons, a further analysis is useless at this stage.

Year 10, top set, Mr. M., maths teacher

According to the national curriculum for PSHE at key stage 4, students in year 10 and 11 should be taught about 'The benefits and risks of [...] choices relating to sexual activity' and 'Relationships, family and parenting skills'. Even though a module on teenage pregnancy is not verbally mentioned in the curriculum, the topic perfectly fits in when dealing with risks of choices relating to sexual activity.

It goes without saying that one main risk of sexual activity is getting pregnant. The other is being infected by sexually transmitted diseases or STIs for short. It is school policy at the Heathland School to deal with HIV/AIDs in year 10 and with STIs and safer sex in general in year 9. Another decision of the PSHE department of the Heathland School is to teach a module on teenage pregnancy in year 9 tutor groups in 2009/10. By following the guidelines from the head of PSHE, Mr. M also taught PSHE in line with the guidelines provided by the non-statutory curriculum for PSHE key stage 4.

One aim of Mr. M's lessons on teenage pregnancy was to provide facts, figures and, thus, arguments for the students. Obviously, students should enlarge their statistic knowledge about teenage pregnancy and consequences. The other aim was to enable students to transform that new knowledge into useful arguments. These arguments have been skilfully used in the debate about teenage pregnancy. As an unbiased observer, I got the impression that both aims have been reached and that the module on teenage pregnancy has been presented in an adequate way.

Finally, Mr. M's last comment is worth analysing. He said that contraception is not part of the PSHE curriculum. It is correct that contraception is not explicitly mentioned in the curriculum for key stage 4. However, the curriculum clearly states that contraception is part of PSHE at key stage 3. Mr. M added that students would 'hear about contraception and that stuff in science'. Contraception is not written down in the curriculum for science, though. It seems as if it is not always clear which aspects of sex education are dealt with in science or PSHE. One cannot expect a maths teacher to know the curriculum for science by heart. As he thought contraception is not part of PSHE, he probably just assumed that it would be an element of the curriculum for science. In addition, Mr. M offered to discuss any questions with his tutor group. In doing so, he showed his willingness to support his students and answer further questions about sex education, even if the relevant topics might not necessarily be part of his duties as PSHE teacher.

6.2.3. Summary of Observations

Science observations

Three striking differences between the two teaching sequences on sex education which have been observed deserve to be highlighted at this stage. First, Mr. L taught a higher set and could therefore include more information and generally taught on a scientifically higher level than Ms. C. Second, the tests set at the end of the two teaching sequences on sex education varied in terms of difficulty level. Even though both teachers used the exemplary test from the shared area as guideline for compiling their own test, Mr. L's test was in the end more difficult than the one by Ms. C. Third, the two approaches completely differed in terms of teaching material. Ms. C used power point and interactive games in almost every lesson while Mr. L. did not use electronic devices apart from when showing short films.

Nevertheless, both teaching sequences on sex education which have been observed as well as Ms. P's lessons cover the compulsory elements of sex education to be found in the national curriculum for science at key stage 3. The result might be influenced by the fact that both teachers knew that they would be observed. However, there was not much time between asking permission for the observation and the actual lessons. So, it is very unlikely that Mr. L and Ms. C changed their teaching style or importance devoted to sex education because of the fact that they would be observed.

PSHE observations

In contrast to science, it is very common to divide PSHE tutor groups into boys' and girls' groups for the topic area sex education. All topics dealt with in the observed or described lessons can be found in the non-statutory curriculum for PSHE at key stage 3 or key stage 4. However, it is hard to draw the same conclusion the other way round. The question is: Have all topics which are stated in the curriculum been dealt with in the respective lessons? That question cannot be answered by simply observing 5 PSHE lessons. One problematic aspect is that one key stage covers 2 or 3 school years. So, it is not officially required by the curriculum but up to individual school policy in which school year which topics should be covered in PSHE. According to Mr. Walsgrove, head of PSHE at the Heathland School, the lessons observed from year 7 to year 10 should be planned along the following guidelines:

- Year 7: Puberty; My body
- Year 8: Sex and sexuality
- Year 9: Contraception; Sexually transmitted diseases (= STD) and safer sex
- Year 10: HIV/Aids; Accessing support, A module on teenage pregnancy

In retrospect, almost all topics mentioned above have been dealt with in the lessons observed. Although it has been postponed twice, there was the intention of Ms. K to teach puberty in her year 7 tutor group. Sex and sexuality has been the topic of Mr. B's and Ms. G's lessons in year 8, even though their focus was finally rather on pregnancy, contraception, sexism and homosexuality. Contraception, teenage pregnancy and partly abortion were central elements of the year 9 lessons discussed. Finally, Mr. M's lessons in year 10 focused on teenage pregnancy. He did not include HIV in the lessons observed but might as well do it in the lessons to come in another term. The observations carried out clearly highlight that the PSHE teachers at the Heathland School mostly stuck to the recommendations from their head of

PSHE, which are in turn based on the curriculum for PSHE. So, one can claim that they did teach along the non-statutory curriculum for PSHE.

The second problematic aspect of teaching sex education in PSHE is clearly that students are not tested in that subject. Even if the respective PSHE teacher plans and teaches a perfectly balanced and appropriate lesson, it is unclear how much really sticks in students' heads because they never really have to learn it for a test. Merely listening to the teacher and occasionally nodding does not automatically mean remembering what he or she taught. Therefore, I am of the opinion that basic aspects of sex education such as contraception should be dealt with in science instead of PSHE.

The third and most severe disadvantage of teaching sex education in PSHE is that most PSHE teachers are not trained in science. Therefore, there is a huge variation in terms of quality and intensity of the topics dealt with. Some teachers like the maths trainee Mr. B in year 8 are prepared well and do not feel uncomfortable talking about sex education at all whereas others like Ms. L in year 9 obviously felt uneasy and wanted to get that topic over as quickly as possible. Furthermore, every PSHE teacher has his or her own approach and different core themes. Mr. M in year 10 for example used lots of figures and statistics while Ms. G in year 8 choose a personal approach, telling the students about her own experiences and including stories of her life. While differences in teaching style happen in any subject and do not need to be regarded as something negative, it is my personal belief that PSHE teachers who are not trained in science are disadvantaged compared to science teachers. They probably have the background knowledge about sex education as such. However, they lack the skill and experience about how to convey such a delicate topic to a bunch of pubescent students and thus, tend to feel more uncomfortable when teaching sex education than science teachers.

6.3. Questionnaires for Teachers of Sex Education

This section analyses and discusses the results presented in 5.3 *Questionnaires for Teachers of Sex Education*. The results of question A4 are based on a data set of 27 questionnaires while information for B3, B4, B5, B7, B8 and B12 derives from 21 questionnaires.

6.3.1. A) Questions Related to Teaching Sex Education in General

A4) How do you personally feel about teaching sex education? ⇔ Subject

Figure 3 in section 5.3.1 already highlighted that the following four answer options, in particular the first two, show the biggest differences due to variable subject:

- Teaching sex education is different from any other topic
- Challenged
- I don't like it
- I don't mind teaching sex education at all

First, one could have expected that the majority of PSHE teachers feel that teaching sex education is different from any other topic covered in their lessons. PSHE is a subject characterized by a variety of very distinct focus areas summed up under the umbrella terms economic wellbeing, financial capability and personal wellbeing. Teachers are not trained and specialized in all aspects of these topic areas and, therefore, usually receive prepared material from their heads of PSHE as support for coping with these topics. So, it comes as no surprise that 73,7 % of PSHE teachers who handed back the questionnaire feel that teaching sex education is different from any other topic covered in PSHE. In contrast, a comparably small percentage of 25 science teachers felt that teaching sex education is different from other topics of their science lessons. As science teachers deal with topics related to sex education such as reproduction in the animal world or natural selection more often, it seems natural that they tend to perceive sex education as less different from other topics than PSHE teachers do. One could conclude that PSHE teachers are simply not as used to teaching sex education as science teachers are and therefore feel it to be very different from their usual way of teaching.

Second, none of the 8 science teachers under analysis felt challenged when teaching sex education whereas almost half of the PSHE teachers, namely 42,1 %, did so. This result

confirms an assumption mentioned earlier in this paper. While science teachers are trained to teach sex education, PSHE teachers are not unless they are science teachers themselves. So, it is obvious that the challenge to teach sex education properly is bigger for PSHE teachers than for science teachers. Besides, science teachers teach sex education more often in the course of their teaching career than PSHE teachers do. So, it comes as no surprise that the challenge for PSHE teachers who are less used to teaching sex education is higher than for science teachers who teach it annually or every other year.

Third, answer option *I don't like it* links perfectly well with the previous statements. 36,8 % of PSHE teachers admitted that they do not like teaching sex education opposed to 0 % of science teachers. The reasons for that gaping result are most likely to be found in huge differences in scientific teacher training. It seems natural that less profound training and knowledge in sex education leads to a dislike of teaching it. The 6 comments from PSHE teachers listed at the end of section results for question A4) confirm that assumption. Only 1 out of 6 statements shows a neutral attitude towards sex education while the remaining answers are characterized by uncertainty and dislike. Besides, science teachers already knew that they would have to teach sex education sooner or later when they decided to study science with a teaching purpose. Therefore, people who did not like the idea of teaching sex education at all most likely decided not to continue studying science with a teaching purpose. The situation is different for PSHE teachers who come from different subject backgrounds. Teachers of physical education or languages for example most likely have never felt the wish to teach scientific topics. Thus, having to teach sex education to their tutor groups in PSHE could lead to feeling unwell or even rejection.

Fourth, divergences in the statement *I don't mind teaching sex education at all* can be explained using similar arguments as above. Not more than 26,3 % of PSHE teachers agree on that utterance which can most likely be explained again by a lack of professional training in sex education. With 62,5 %, more than double science than PSHE teachers confirm not to mind teaching sex education. As teacher training in sex education is supposed to be sufficient for science teachers, one could ask why the percentage is not even higher. It can be assumed that sex education as such is and will most likely remain a delicate topic for most teachers, even if enough expert knowledge is available.

A4) How do you personally feel about teaching sex education? ⇔ Gender

Figure 4 already highlighted that the gap between female and male answers on question A4) is smaller than between science and PSHE. The most striking result is to be found in answer option *good*. Solely 3 out of 27 teachers stated to feel *good* when teaching sex education, all of these 3 teachers are male. Two of these male teachers are PSHE teachers and the other one is a science teacher. At this stage, one could be tempted to claim that feeling good when teaching sex education is naturally a male characteristic, hardly to be found in women. However, due to a limited number of questionnaires, one cannot say for sure whether answer *good* is a typically male response or mere coincidence. So, it is justified to claim that all 3 ticks for *good* in our sample derive from male and none from female teachers. But drawing any further conclusions is not acceptable because of the small number of data.

Furthermore, a proportion of 30 % male teachers to 5,9 % female teachers who ticked both options, *I really enjoy it* and *I dread it*, seems noticeable at first but does not lead to profound conclusions. Double-checking the data set shows that the same 3 male and 1 female teachers found arguments for these two contradicting arguments and therefore, ticked both. By doing so, they did not decide for one or the other and can therefore not be classified according to whether they *really enjoy it* or *dread it*. Summing it up, variable gender seems to have less influence on the choice of answer options than variable subject analysed earlier.

6.3.2. B) Questions Related to Science or PSHE in 2009/2010

B3) How many lessons did you devote to sex education in 2009/2010? ⇔ Classes

The national curriculum does not tell how many sex education lessons science and PSHE teachers have to teach per year or set. According to a higher number of sex education elements in science than in PSHE, one could expect that more science than PSHE lessons deal with sex education. Figure 5 supports that assumption. Science students in year 7 receive with 7,25 lessons per year the largest amount of sex education lessons. As year 7 is the key year in which sex education is a central element, this comes as no surprise. Year 8, 9 and 10 PSHE students get to hear about sex education in averagely 3 lessons per year. That result roughly conforms to the observations of individual PSHE lessons at the Heathland School described in 5.2.2 *Observations of PSHE lessons*.

Finally, 4,5 lessons of sex education in year 11 PSHE seems to be surprisingly high at first. However, that number comprises of just 2 questionnaires, one teacher stating to have

taught 6 lessons whereas the other mentioned 3. It is possible that the teacher claiming to have taught 6 lessons either exaggerated or taught sex education twice to two different groups, which means teaching 3 lessons in each group. In any case, 3 seems to be the average number of sex education lessons taught in PSHE per year while the number of science sex education lessons in year 7 is with 7,25 lessons more than double as high.

B4) Which topics did you cover this school year? ⇔ Subject

Section 5.1 *Comparison of Sex Education Curricula* already highlighted that some aspects of sex education are to be dealt with in science while others are part of PSHE. Likewise, figure 6 in 5.3.2 demonstrated a rather clear distinction of topic areas into these two subjects. As the national curricula for science and PSHE explicitly state which aspects of sex education should be covered by which subject, one could ask why the allocation in figure 6 is not even more precise. There are several reasons which might answer this question.

First, the national curriculum for science and PSHE provides a rough survey about topics of sex education which should be covered in either subject but does not go into detail. So, it is not always clear where to draw the line between science and PSHE. Elements such as *pregnancy* and *sexual intercourse* for example could be assigned to both subjects. Correspondingly, these two topics attract attention in figure 5 because they are less strictly assigned to PSHE or science than others and were taught in both subjects in 2009/2010 at the Heathland School.

Second, the national curriculum is vague in terms of timing. Key stages comprised of 2 or 3 school years are used as classification scale without giving more exact recommendations. So, one cannot say for sure whether topic puberty for example should be dealt with in PSHE year 7, 8 or 9 because key stage 3 consists of these 3 years. In many cases and also in the Heathland School, the schools themselves create a schedule by listing in which years several PSHE topics have to be dealt with. Besides, the questionnaires have been handed out in May 2010, which means in the first half of summer term. So, topics covered in the second half of summer term are not included.

Third, the PSHE sample is in itself inhomogeneous. It consists of 4 different year groups, namely 6 times year 8, 4 times year 9, 5 times year 10 and 2 times year 11 groups. So, it is impossible to reach for example a maximum of 100 % for topic *teenage pregnancy* because that topic is simply not dealt with in each of the 4 year groups under analysis.

Fourth, even though all 4 science questionnaires derive from year 7 classes, data is inhomogeneous as well. As mentioned in 4.4.1 *School Profile*, students at the Heathland School are in most subjects divided into 3 bands and 3 to 4 sets, according to their efforts and aptitude. Higher science sets tend to cover sex education and other topics in more detail than lower sets and might even find the time and interest to include aspects such as *asexual reproduction* or *the menstrual cycle*. Figure 6 highlights that only 1 or 2 out of 4 year 7 sets did so. In contrast, key elements of sex education should be dealt with in all groups, independent of their band or set. Correspondingly, all 4 year 7 sets dealt with *sexual reproduction*, *puberty*, *egg cells*, *male and female reproductive organs*, *sperm to egg cell*, *changes during pregnancy* and *twins*. Even though figure 6 is characterized by a number of limitations as mentioned above, it still confirms that individual aspects of sex education tend to be rather assigned to science or PSHE instead of to both.

According to the head of PSHE, *puberty* and *my body* are topics which should be dealt with in all year 7 tutor groups. Figure 6, however, highlights that 100 % of all science teachers opposed to 17,6 % of all PSHE teachers taught *puberty* in 2009/2010. The reason for that unexpected result is easily explained. The questionnaires which served as data set were handed in by year 8, 9, 10 and 11 PSHE teachers and year 7 science teachers. Not a single year 7 PSHE teacher handed in a properly filled in questionnaire. So, one cannot say for sure whether year 7 PSHE teachers have not yet dealt with *puberty* in their tutor groups till the end of May 2010 or they did not cover it in year 7 at all. The example of an intended but never carried out PSHE observation in Ms. K's year 7 class as described in 6.2.2 *Observations of PSHE lessons* shows that even the teacher herself was not sure whether there would be time left to teach *puberty* in her tutor group or not. It is also possible that *puberty* was taught in year 7 PSHE tutor groups but that by chance all year 7 PSHE teachers simply did not hand in the questionnaire. All other topics of the Heathland's schedule for PSHE, namely *sex and sexuality* (year 8), *contraception*, *sexually transmitted diseases*, *safer sex* (year 9), *HIV*, *teenage pregnancy* (year 10) and *parenting skills* (year 11) as well as *relationships* and *skills for situations 1 and 2* (key stage 3 and 4) have been covered in the respective year as suggested by the head of PSHE.

Finally, *teenage pregnancy* and *contraception* are of particular interest for the focus of this paper. Figure 6 clearly highlights that both topic areas are dealt with in PSHE. Justifiable, one could argue now why these highly important issues are not taught by experts, namely science teachers. As a matter of fact, the Maths teacher Mr. M. who was observed as described in 6.2.2 *Observations of PSHE lessons* thought and said that his year 10 PSHE tutor

group would hear about ‘contraception and that stuff’ in science. Obviously, teachers do not always know themselves where to draw the line between topics of sex education taught in PSHE and science. More on that dilemma will follow later.

B5) How would you describe the students’ reactions? ⇔ Science and PSHE combined

Figure 7 lists the frequencies of students’ reactions towards sex education in science and PSHE together. Obviously, answer options *keen*, *frequent giggling* and *paying more attention than usual* can be used to characterize sex education lessons held at the Heathland School in 2009/2010. Apart from *frequent giggling*, these reactions can be considered as positive for a productive climate in class and help improving learning progress. So, one cannot claim that sex education is hard to teach due to a lack of interest on the students’ side. Figure 7 clearly rejects that prejudice. Sex education in class probably is a delicate topic because of enhanced attention of students combined with possible uncertainties of less experienced, nervous or unprofessional teachers. From this point of view, blaming the students and their behaviour in sex education lessons for difficulties in teaching it seems to be a false argument.

B7 and B8) Do most parents know of their right to take their children out of sex education lessons and did any parents do so? ⇔ Science and PSHE combined

As depicted in figure 8, almost half of the 21 science and PSHE teachers who handed in a questionnaire did not know whether parents know of their right to take children out of sex education lessons. So, one can assume that these 10 teachers have so far never experienced a situation in which parents managed or tried to prevent their children from hearing about sex education in a school setting. Furthermore, there was not a single incidence in 2009/2010 at the Heathland School in which parents took out their children from sex education lessons. Thus, one can conclude that as far as the Heathland School is concerned, the right to take children out of sex education lessons is rather a theoretical means than a frequently practised method. It definitely not is at issue that the high rate of teenage pregnancies in England might result from parents’ right to take their children out of sex education lessons.

B12) In which way(s) did you test your students' knowledge? ⇔ Subject

Figure 9 obviously confirmed that huge differences in terms of testing exist between science and PSHE. As already assumed, it turned out that science teachers stick to rather traditional ways of testing such as *one written end of topic test* while PSHE teachers, who are not obliged to test their student's knowledge, prefer *observing participation* and *random oral checks*. Surprisingly, 1 out of 17 PSHE teachers (= 5,9 %) stated to have set *one written end of topic test* in a year 9 tutor group, even though he or she was not obliged to do so. This example shows that it depends a lot on individual teaching style and attitude how intense and serious PSHE topics are dealt with. When asking the respective teacher what the test for her year 9 tutor group was about, she said that 'they were asked to give their opinions on various forms of contraception'. In contrast, almost 1/3 of PSHE teachers admitted not to set any tests at all. However, it is not entirely clear whether they would label *observing participation* and *random oral checks* as tests or not. To sum it up, figure 9 confirms the assumption that huge differences in terms of testing between science and PSHE exist and, to be more specific, that science teachers rather set an end of topic test while PSHE teachers tend to observe participation in class and carry out random oral checks.

6.3.3. Main Findings from the Questionnaires

The main findings from the questionnaires handed out in the Heathland School in 2009/2010 are summarized and listed below:

- 73,7 % of PSHE teachers feel that teaching sex education is different from any other topic
- 42,1 % of PSHE teachers feel challenged about teaching sex education
- 36,8 % of PSHE teachers do not like teaching sex education
- 62,5 % of science teachers do not mind teaching sex education at all

- More male than female teachers feel good about teaching sex education

- PSHE teachers spent on average 3 lessons per year on sex education
- Science teachers spent on average 7,25 lessons per year on sex education in year 7 classes

- Typical topics covered by science teachers are
 - o Sexual and asexual reproduction
 - o Puberty and the menstrual cycle
 - o Sperm and egg cells
 - o Male and female reproductive organs
 - o Sperm to egg cell
 - o Changes during pregnancy
 - o Fetus
 - o Twins

- Typical topics covered by PSHE teachers are
 - o Contraception
 - o Sexually transmitted diseases = std
 - o Teenage pregnancy
 - o Abortion
 - o Being a parent and being mentally ready
 - o Love and partnership

- Pregnancy and sexual intercourse are covered in science and PSHE

- Typical reactions of students' on sex education in science and PSHE are keen, frequent giggling and paying more attention than usual

- No parents took their children out of sex education in science or PHSE in 2009/2010. So, this example of parents' control is excluded from further analysis.

- 100 % of science teachers set one written end of topic test to test students' knowledge
- 64,7 % of PSHE teachers observe students' participation to test their knowledge
- 41,2 % of PSHE teachers carry out random oral checks to test their students' knowledge

7. Conclusion

A three-part strategy composed of curricula comparisons, observations at the Heathland School and questionnaires for teachers of sex education has been applied in order to find arguments supporting or rejecting the hypothesis of this thesis. The hypothesis is: *Sex education at schools in England is taught to a lesser extent than sex education at schools in Austria*. The main results from that strategy will be used as basis for argumentation. Besides, several research questions have been formulated and are answered in the course of this section.

7.1. Research Questions Referring to the National Curriculum

- **In which grade of school and to what extent must sex education in England be taught according to the national curriculum?**

As described in 2.3.3 *Sex Education in England*, the subjects science and PSHE are meant to complement each other in dealing with sex education. PSHE is short for personal, social, health and economic education. PSHE is based on a non-statutory programme of study which means that schools are not obligated to follow these national guidelines whereas the science curriculum is obligatory in England and Wales. Neither of the two curricula states to what extent and how many lessons of sex education have to be taught. Areas of sex education to be dealt with according to the English national curriculum are listed in the paragraph to come.

The human reproductive cycle, adolescence, fertilisation and foetal development are elements of the national curriculum for science at key stage 3. These topics are supplemented by *puberty, sexual activity, human reproduction, contraception, pregnancy, sexually transmitted infections and HIV, relationships, bringing up children, gender and sexual orientation* dealt with in PSHE at key stage 3. Key stage 3 covers years 7, 8 and 9 which means students aged 11 – 14. It is mainly up to individual school policy and heads of PSHE which of these topics are dealt with in which year.

The national curriculum for science at key stage 4, which means for year 10 and 11, does not literally include sex education as such but topics which are related to it do appear. First, *adaption, variation and evolution* might refer to Charles Darwin and sexual selection. Second, *genes in cells and inherited factors for human health* are likely to lead to heredity and genetics. Third, *chemical and electrical signals in body systems* clearly refer to hormones, which is strongly linked to sex hormones. The non-statutory curriculum for PSHE at key

stage 4 names *the benefits and risks of choices relating to sexual activity, relationships, family and parenting skills* as its central elements related to sex education in a wider context.

➤ **Are there significant differences to the Lehrplan in Austria?**

Three main differences between the Austrian Lehrplan for sex education and the English national curriculum have been found out. First, biology is mainly responsible for sex education in Austria whereas science and PSHE cover it collaboratively in the United Kingdom. Second, the Lehrplan explicitly states in which year individual sub-topics should be dealt with while the national curriculum simply categorises age groups composed of 2 or even 3 years. Third, the two curricula vary slightly in terms of topics assigned to respective age groups. A close analysis of the differences is presented in section 6.1 *Comparison of Sex Education Curricula*. This section focuses on aspects which are relevant for answering the hypothesis in further consequence.

To start with, the separation of sex education into science and PHSE leads on to question the importance of the latter. As PSHE is based on a non-statutory programme of study, teachers are not obliged to follow these guidelines. Whereas one can assume that the national curriculum for science is followed in England and Wales, the principles for PSHE are not obligatory. In Austria, it is mandatory to follow the frame of the Lehrplan even though there are few checks whether biology teachers really stick to it. Besides, PSHE is taught by the respective form teacher or tutor of a group who usually teaches any subject such as languages, maths or physical education. PSHE teachers are not necessarily trained in sex education unless they are science teachers themselves. It comes as no surprise that the average PSHE teacher is said to teach sex education in a less professional way than science teachers do due to his or her lack of teacher training in sciences. Another drawback of PSHE is that there are usually no tests and not even grades in PSHE while tests are obligatory in science. Consequently, the status of PSHE is in many schools quite low. If extra time for external presentations or exams is needed, PSHE lesson are more prone to be cancelled than other subjects. Furthermore, the separation of elements of sex education into two different subjects might lead to uncertainties among the teachers themselves. As Mr. M's comment in his year 10 tutor group showed when stating that *contraception* is not part of PSHE, it happens that the teachers are not sure which aspects of sex education are to be dealt with in science and PSHE. Likewise, Ms. C' year 7 science class complained about not having had enough input on *puberty* in PSHE because they frequently had assemblies instead of PSHE.

Bearing these drawbacks of PSHE in mind leads on to the question why such an important topic as sex education is partly taught in a subject characterized by low status, no tests and less professional teacher training. The answers to the following research questions will reveal whether the drawbacks mentioned above are really as severe as feared or PSHE teachers are able to convey sex education as good as science teachers do. In any case, there are three obvious suggestions which would most likely enhance the quality and status of sex education in PSHE. One could make PSHE a compulsory subject, introduce testing and provide more profound teacher training about sex education. Instead, it is also possible to include all basic aspects of sex education into science and deal with less delicate topics in PSHE. However, it is a common opinion that sex education should be dealt with by the tutor or form teacher because it is a delicate topic and students tend to feel closest to their form teacher. This argument clearly supports the inclusion of sex education in PSHE.

The classification into age groups is another difference between the national curriculum and the Austrian Lehrplan. The Lehrplan for AHS clearly states which aspects of sex education have to be covered in year 1, 4, 6 and 8. Contrary, the English national curriculum prefers a classification into age groups and labels them key stage 3 for 11-14 year olds and key stage 4 for 14-16 year olds. In England, it is not defined by law in which exact year specific aspects of sex education should be dealt with. Nevertheless, most schools follow a so-called scheme of work. That list is created and handed out regularly by the respective heads of department. It is usually accompanied by a pack of teaching material to be used by PSHE teachers. The scheme of work structures individual topics and assigns them to specific years. So, even though the national curriculum supplies not more than a rough frame, schools in England do follow an annual plan of topics provided by the respective subject department. It goes without saying that the Austrian Lehrplan is more precise in regulating age groups than the national curriculum. However, this does not directly influence the quality and extent to which sex education is taught.

Furthermore, the two curricula differ enormously in terms of aspects of sex education to be dealt with. For the focus of this paper it does not matter whether sub-topics of sex education are covered in the same year in England as in Austria. However, it does matter if individual topic areas are omitted in either curriculum. Likewise, topics assigned to PSHE are more prone to be neglected than subjects covered in science due to reasons mentioned above. There are two main differences between the contents of the Lehrplan for AHS Unterstufe and the national curriculum at key stage 3. First, *sexual abuse and prophylaxis* is highlighted in the Lehrplan but not in the national curriculum. Second, *gender and sexual orientation* are

aspects of the national curriculum but not of the Lehrplan. As these topics do not directly affect teenage pregnancy, there is no need to discuss them any further. Contrary, topic *contraception* is of deep interest for answering the hypothesis. *Contraception* is not mentioned in the science but in the PSHE curriculum for key stage 3. Thus, one could again complain about the fact that essential biological topics are taught by PSHE teacher without scientific background. *Sexuality and contraception* are basic elements of sex education and directly influence teenage pregnancies. From this point of view, leaving *contraception* to PSHE instead of science teachers seems to be an unwise choice.

More differences than similarities are to be found when comparing the curricula for AHS Oberstufe for biology with science or PSHE at key stage 4. Even though some aspects could be related to others, it is generally mainly up to the teacher how intense and with which focus huge issue-areas such as *modern life sciences* or *heredity and genetics* are dealt with. Focusing again on topics in close connection with teenage pregnancies, *contraception* is neither explicitly mentioned in the AHS Oberstufe Lehrplan nor in the science or PSHE curriculum at key stage 4. *Contraception* is very likely to be included in *sexuality* in the Lehrplan for AHS Unterstufe in year 6 and in *sexual activity* in PHSE at key stage 4. Again, it depends a lot on individual school policy and motivation of teachers how intense and with what scope topic areas are dealt with. To sum it up, looking at the national curriculum and the Lehrplan out of context and strictly focusing on topics and years written down, there seem to be many differences. A closer analysis, however, highlights that not all of these distinctions are as severe for the focus of this paper as initially assumed. The research question on teenage pregnancy in 7.3 of this section will carry on and evaluate that thought.

7.2. Research Questions Referring to the Heathland School

➤ How does the Heathland School as case study apply the curriculum in practice?

A number of science and PSHE lessons have been observed in order to find out whether topics and age levels as suggested by the English national curriculum match with the actual teaching situation at the Heathland School.

To start with science, all key elements of sex education according to the national curriculum have been included in year 7 top and bottom set. The classification of students into different sets and bands according to their aptitude is called streaming and is not only carried out in England but also in some Austrian secondary modern schools. Differences in scientific level and intensity of teaching between 7x2 and 7y3 have been expected and could be confirmed in the course of the observations. Mr. L's top set dealt with the subject matter in a more advanced way than Ms. C in her bottom set. He encouraged his students to use scientific terms and added aspects related to sex education even though they were not explicitly mentioned in the curriculum. In contrast, pace, intensity and scientific level were lower in Ms. C's bottom set than in Mr. L's top set. Likewise, the students themselves seemed to ask less complex questions and required more time to understand various concepts. To sum it up, the contents of both teaching sequences matched well with the topics highlighted in the national curriculum for science at key stage 3. Therefore, it is justified to claim that the evaluated science teachers from the Heathland School applied the national curriculum for science at key stage 3 to a satisfactory extent.

With regard to PSHE, one needs to differentiate more because tutor groups of different ages have been observed. Year 7, 8 and 9 are summed up as key stage 3 while key stage 4 is used to refer to year 10 and 11. The intended and twice postponed observation in Ms. K's year 7 tutor group confirmed the low status of PSHE at the Heathland School. Obviously, PSHE is more prone to be cancelled than other subjects. After two temporal displacements, the teacher admitted that she was not sure if there was any time left for *puberty* in the current school year. So, students might not have heard of puberty at all due to the reduced importance of PSHE. The topics taught in the observed year 8 lessons matched well with some of those highlighted earlier in the national curriculum for PSHE at key stage 3. Mr. B and Ms. G seemed competent and confident enough to teach sex education to a year 8 tutor group even without having had any scientific teacher training.

The topics *contraception* and *pregnancy* taught in the year 9 tutor groups are elements of the non-statutory curriculum for PSHE at key stage 3. Ms. L's teaching sequence on *contraception* fulfilled my personal expectations by no means. Instead of profound and charismatic lessons, the young teacher mainly relied on films and quizzes and seemed to avoid talking about *contraception* as much as possible. That personal impression fits perfectly well with Ms. L's statement prior to the lesson, which was 'I don't like teaching sex education at all and I don't feel confident doing it'. It comes as no surprise that Ms. L seemed to be insecure and even reluctant when teaching a topic she neither likes nor is an expert in. The big drawback of not teaching *contraception* to a satisfactory extent is that knowledge about contraceptive methods is a key element for avoiding pregnancies at any age.

Mr. M taught PSHE to his year 10 tutor group in line with the guidelines provided by the non-statutory curriculum for PSHE at key stage 4. He seemed to be very confident and professional when teaching sex education and presented the module on teenage pregnancy in an adequate way. He assumed *contraception* to be part of science instead of PSHE when asked by a pupil. As a matter of fact, however, *contraception* needs to be dealt with in PSHE key stage 3. This example confirms that it is not always clear, not even for the teachers themselves, which aspects of sex education have to be dealt with in science or in PSHE.

To sum it up, all topics covered in the observed science and PSHE lessons can be found in the respective curriculum. Both observed science teaching sequences have been properly presented and the level was suitable for students' aptitudes. Most PSHE lessons were adequate given that the teachers are no experts in sex education. Nevertheless, one point of criticism needs to be highlighted with regard to *contraception* in year 9. Obviously, the teacher did not feel confident teaching sex education and therefore did not manage to present the topic in an adequate way. As the knowledge about contraceptive methods is closely related to *teenage pregnancy*, one is tempted to blame incomplete and insufficient lessons for a high teenage pregnancy rate. More thoughts about that serious allegation will follow later.

➤ **How do science and PSHE teachers at the Heathland School feel about teaching sex education?**

Questionnaires for science and PSHE teachers at the Heathland School have been created in order to find answers to this and several other questions to follow. It turned out that there are noticeable differences in the way science and PSHE teachers feel about teaching sex education. 73,7 % of PSHE teachers feel that teaching sex education is different from any

other topic opposed to just 25 % of science teachers. Likewise, almost half of the PSHE teachers from our sample (42,1 %) feel challenged when teaching sex education and 36,8 % admit not to like teaching sex education while not a single science teacher ticked one of these two answers. What do these results tell us now?

Obviously, PSHE teachers tend to perceive sex education as more different and more challenging than science teachers do and one third of them even admit not to like it. Bearing the limitations of sex education in PSHE in mind, these results come as no surprise. Less profound knowledge in scientific topics as well as the rather low status of the subject PSHE as such are just two of several disadvantages of PSHE as discussed earlier in *6.1.1 Sex Education in Science and PSHE*. Science teachers are simply better prepared for sex education due to their teacher training for the subject science and deal with it on a more regular basis than PSHE teachers do. It seems natural that differences in quality and extent of teacher training also result in differences in actual teaching and attitudes towards it. Correspondingly, almost two thirds (62,5 %) of science teachers as opposed to just one quarter (26,3 %) of PSHE teachers claim that they do not mind teaching sex education at all. In other words, sex education is simply an integral component of their subject for most science teachers whereas PSHE teachers tend to perceive it as exceptional and challenging.

It is a widespread opinion that a positive attitude towards the subject matter, appropriate appearance in class and profound background knowledge are essential for successful teaching. If one or two of these elements are not provided to a certain extent, quality of teaching might suffer. As established above, more than one third of PSHE teachers admit that they do not like teaching sex education which means that a positive attitude is not guaranteed. Besides, profound background knowledge is not always given unless the PSHE teacher coincidentally comes from a scientific background. From this point of view, it is justified to doubt the quality of sex education in PSHE.

➤ **How would they describe students' reactions?**

Answers from science and PSHE questionnaires have been evaluated together to reply to this question because splitting up the subjects did not show noticeable deviances between the subjects. It turned out that typical reactions of students' on sex education are *keen*, *frequent giggling* and *paying more attention than usual*. It goes without saying that *frequent giggling* is a reaction which was to be expected and which many of us have experienced in our sex education lessons at school, too. *Keen* and *paying more attention than usual* are reactions

considered as positive by teachers because they help improving learning progress. One can conclude that students' reactions on sex education at the Heathland School are not particularly worse than those in Austrian schools. Therefore, the findings from this question are of no particular relevance for answering the hypothesis.

➤ **How much time do they devote to sex education?**

As expected, the number of lessons spent on sex education per year varies enormously between the two subjects science and PSHE. The national curriculum does not tell how many sex education lessons have to be held per year but names a higher number of topics related to sex education to be covered in science than in PSHE. Correspondingly, the science teachers of our sample spent on average 7,25 lessons per year on sex education in year 7 whereas 3 lessons was the average in PSHE. Unfortunately, the amount of sex education lessons in science at key stage 4 is unknown. Ignoring that lack for the moment, more than 7 sex education lessons in science complemented with three lessons a year in PSHE seems to be an appropriate number for conveying that topic. By way of comparison, the Austrian Lehrplan for AHS does not determine the number of sex education lessons per year, either. So, a precise amount of lessons is not given in either of the curricula under analysis. All in all, the number of sex education per year in science and PSHE seems to be sufficient for conveying that topic in an appropriate way. Therefore, it is not justified to claim that sex education at schools in England is time-wisely taught to a lesser extent than in Austria.

➤ **Which subtopics are dealt with in particular?**

According to the data set from the Heathland School, most sub-topics are either clearly assigned to science or PSHE. Topics *pregnancy* and *sexual intercourse* are dealt with in both subjects. A detailed list is to be found in section 6.3.3 *Main Findings from the Questionnaires*. Sub-topics *contraception*, *abortion* and *teenage pregnancy* are of particular interest for the focus of this paper. As highlighted in figure 6, these three topics are clearly allocated to PSHE and have not even been ticked once by a science teacher. The limitations of sex education in PSHE have already been mentioned above. Bearing them in mind, it is my personal belief that in particular *contraception* should be incorporated in the science curriculum and might in addition remain an element of PSHE, as well.

Contraception is a vitally important topic which should be repeated over and over again. Knowledge about contraceptive methods at a young age is definitely one among other

key issues for preventing a further increase of teenage pregnancies. PSHE is a subject in which written tests are rare and the teacher often cannot tell how much of his or her explanations really stick in the students' heads. 29,4 % of PSHE teachers admit not to set any tests at all and the remaining teachers rely on *observing participation in class* and *random oral checks*. By contrast, 100 % of science teachers set an end of topic test about sex education. Conveying this finding from the Heathland School to the English population means that English school children attending average comprehensive schools usually do not have to study facts about *contraception* for an exam. As repeating and studying are basic conditions for remembering, one might feel that English pupils lack long-lasting knowledge of contraceptive methods. Subsequently, a higher number of adolescent pregnancies than in other European countries due to less profound contraceptive knowledge from school is standing to reason. The next research question will discuss that assumption in more detail.

7.3. Research Question Related to Teenage Pregnancy

- **Is it appropriate to claim that the way and extent to which sex education is taught at schools in England is one of many reasons for a particularly high rate of teenage pregnancies?**

As described in the first question, the national curriculum for science and PSHE regulates the way and extent to which sex education is taught at schools in England. It is compulsory to teach a number of defined topics of sex education in science at key stage 3. Sex education is not literally included in key stage 4 but some topics which are related to it, such as *hormones* do appear in the national curriculum. The non-statutory curriculum for PSHE suggests some key elements of sex education like *contraception* for key stage 3 complemented by elements related to sex education in a wider context for key stage 4. All in all, the most important aspects of sex education are either established in the curriculum for science or for PSHE. It is therefore not justified to claim that a lack of sex education per se is one reason for the high number of teenage pregnancies in the United Kingdom.

The extent to which sex education is taught, or in other words, the number of actual lessons, is not defined in either of the curricula. This is not a particularly English phenomenon but concerns the Austrian Lehrplan, as well. It goes without saying that time spent on sex education is a logic consequence of topics covered and depends on individual teachers' motivation as well as on thematic priorities of the respective schools. As the key elements of sex education to be dealt with in science and PSHE are literally stated in the national curriculum, one cannot claim that time and extent to which sex education is taught in England is insufficient. Besides, several observations carried out at the Heathland School as well as specific questions asked in the questionnaires support the assumption that the amount of lessons spent on sex education is sufficient in both subjects, science and PSHE.

The topics with the closest relationship to teenage pregnancies are *sexual intercourse*, *contraception* and *teenage pregnancy*. As highlighted in figure 6 in section 5.3.2 and confirmed by the national curriculum, in particular the latter two are dealt with rather in PSHE than in science. PSHE is non-compulsory by law, taught by non-expert teachers and testing is usually not carried out, either. Quality and extent of sex education in PSHE might be lower and less than in science due to less trained, less experienced and less confident teachers. The drawbacks of sex education taught in PSHE have already been discussed in detail in the second research question and in 6.1.1 *Sex Education in Science and PSHE*. Bearing these arguments in mind, is it justified to argue that the fact that *contraception* and *teenage*

pregnancy in particular are taught in PSHE instead of science is one of many reasons for a particularly high rate of teenage pregnancies in England? Obviously, there are a number of hints supporting that accusation. But how heavy are they really?

Even though the distinction of sex education into science and PSHE is a striking difference to the system of education in Austria and limitations of PSHE have been sufficiently discussed, I am of the opinion that sex education at schools in England should not be blamed. On the one hand, there might be some PSHE teachers who feel not confident teaching sex education due to limited scientific teacher training and other reasons. Likewise, low status and lack of testing in PSHE are not to be considered as something positive, either. On the other hand, however, the quality of PSHE lessons in many schools can still be high. Most likely, there are also a number of PSHE teachers who like teaching sex education and who are good at it. Even if science teachers tend to be better qualified for teaching sex education than PSHE teachers, *contraception* for example is a topic for which teacher training in sciences is not vitally needed because adults and teachers in particular should know about contraceptive methods anyway. Similarly, the familiar atmosphere in PSHE might even improve learning conditions especially if delicate topics such as sex education are dealt with. Sex education in PSHE should not be considered as something negative and incomplete per se. Just because there are some limitations does not mean that they appear in the majority of schools throughout England to a vast extent. Hence, it is not justified to claim that the high rate of teenage pregnancies in England is partly caused by insufficient sex education in PSHE.

To sum it up, less proficiency in sex education in PSHE and no tests in that subject are at a first glance the most likely reasons supporting the assumption that quality and extent of sex education at schools in England might be one cause for a high number of pregnant teenagers. With regard to contents, the national curriculum contains all central elements of sex education. Therefore, a lack of individual sub-topics of sex education cannot be blamed. The observations at the Heathland School as described in section 6.2 confirm that the way and extent of sex education in practice is carried out to a satisfactory extent, too. Even if individual teachers at some schools neglect sex education and the quality of sex education in PSHE might be limited, this does not automatically justify the huge number of pregnant teenagers all over the country. It seems as if the reasons for England's high teenage pregnancy rate needs to be looked for somewhere else than in the system of education. There simply are not enough arguments supporting such a heavy accusation. Hence, it is not appropriate to claim that the way and extent to which sex education is taught at schools in England is one of many reasons for the its lead in teenage pregnancies.

7.4. Hypothesis

- **Sex education at schools in England is taught to a lesser extent than sex education at schools in Austria.**

The way and extent to which sex education is taught at schools in England has been described when answering the first research question and complemented with observations at the Heathland School. Besides, the main differences between the Lehrplan and the national curriculum have been presented in the second research question. It is now time to find out whether the extent of sex education in schools in England is greater or slighter than in Austria. As it is not easy to analyse such a vague term as extent, three categories have been looked at in more detail in the course of this paper. The categories are the division of sex education into science and PSHE, defining age groups and actual contents.

It has been established that sex education in England is taught in science and PSHE while biology is solely responsible for it in Austria. A number of limitations of sex education in PSHE carried out by non-science teachers have been discussed and were mostly confirmed by observations carried out at the Heathland School. It turned out that the most severe drawbacks are first, that PSHE teachers are not trained in giving sex education lessons and second, that students' knowledge, for example about *contraception*, is not tested in PSHE. Third, PSHE has a lower status than most other subjects as confirmed by the Heathland School. So, one is tempted to conclude that not every child attending a public school in England is taught about sex education to the same extent as in Austria. As I see it, it would be unfair to formulate such a severe accusation. Even though the frame of the Austrian Lehrplan is compulsory and tests in biology are common, one cannot automatically assume that every teacher in Austria sticks to the Lehrplan. So, it might as well happen in England as in Austria that individual students do not gain a satisfactory knowledge about sex education at school. Furthermore, even if there are some limitations of sex education carried out in PSHE, one cannot assume that they appear in all secondary schools in England to the same extent. It is more than likely that there are individual PSHE teachers who are even more suitable for teaching sex education than some science teachers are. If the students trust their form teacher more than their science teacher it is actually a good idea to deal with delicate topics such as sex education in PSHE, even if the professional competence might be slightly lower. Likewise, students might remember more than expected even without studying and being tested, in particular if the topic is as interesting as *contraception*. In addition, one can assume that the status of PSHE is not in all English schools as low as it is at the Heathland School.

Hence, the division of sex education into science and PSHE does not necessarily lessen the extent of sex education in English schools.

Furthermore, the national curriculum is less precise in giving age groups than the Lehrplan. Two or three years are summed up and are referred to as key stage 3 and key stage 4 while the Lehrplan explicitly names years and topics to be covered in these years. So, individual schools in England have a wider scope in deciding when to cover which topics because key stages are vaguer than years. That freedom does not necessarily mean that sex education is taught to a lesser extent but that teaching can be carried out in a more flexible way with regard to age. Even though the suggested years vary, the topics themselves do not differ markedly between the two curricula. The most important aspects of sex education are stated in the Lehrplan and in the national curriculum for science or PSHE. Numbers of lessons or any more specific guidelines are not given in any of the curricula.

Ultimately, it seems as if sex education in England is regulated less strictly with regard to age groups than in Austria. English schools tend to follow their own schemes of work which are based on the national curriculum. Topics per year and subject are listed in the schemes of work. In many cases, the respective heads of year provide a pack of teaching material for the teachers in his or her department, as well. Even though schemes of work of different schools tend to be similar, individual school policy and foci of schools play a bigger role in England than in Austria. Besides, the involvement of the non-statutory subject PSHE in sex education bears some limitations but at the same time makes it more variable. Eventually, a number of differences between the Austrian and English approach on sex education could be highlighted. However, it was not possible to accuse either of being better or worse. As it is not justified to claim that sex education at schools in England is taught to a lesser extent than sex education at schools in Austria, the hypothesis needs to be rejected.

As a final comment, the readers should bear in mind that the research carried out for this paper is based on a comparatively small sample of questionnaires filled in by sex education teachers and lessons observed at the Heathland School in west London. In order to obtain more solid results, research on a larger scale, ideally carried out at several schools in different areas, would be necessary. A comparison between schools located in wealthy and deprived areas as well as the respective rate of local teenage pregnancies would show most interesting results. Hence, this paper should be seen as a thought-provoking starting point for further research.

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8.3. Figures and Tables

- Figure 1 The teenage birth league (UNICEF, 2001)
<http://www.unicef-irc.org/publications/pdf/repcard3e.pdf> DOR: 21.12.2010.
- Figure 2 Boroughs of London, Hounslow in red.
www.londontown.com, The London Boroughs, London Borough map
<http://images.londontown.com/restaurants/images/boro/Hounslow.gif>
DOR: 23.10.2010
- Figure 3 How do you personally feel about teaching sex education? ⇔ Subject
- Figure 4 How do you personally feel about teaching sex education? ⇔ Gender
- Figure 5 Average number of sex education lessons in 2009/2010
- Figure 6 Which topics did you cover this school year? ⇔ Subject
- Figure 7 How would you describe the students' reactions and general behaviour?
- Figure 8 Do most parents know of their right to take their children out of sex education lessons? ⇔ Science and PSHE combined
- Figure 9 In which way(s) did you test your students' knowledge? ⇔ Subject

Table 1	Typical Sequence of Events during Puberty in a Female and Male. Jones, R. E., Lopez, K. H. (2006): Human Reproductive Biology. Third Edition. Elsevier Academic Press: Canada.
Table 2	The usual timing of early events in pre-embryonic development Jones, R. E., Lopez, K. H. (2006): Human Reproductive Biology. Third Edition. Elsevier Academic Press: Canada.
Table 3	Adolescent fertility rate (per 1000 girls aged 15-19) WHO, World Health Statistics (2010). World Health Organisation. http://www.who.int/whosis/whostat/EN_WHS10_Full.pdf DOR: 21.12.2010
Table 4	List of PSHE and science observations, Heathland School 2009/2010
Table 5	Topics covered in sex education at AHS Unterstufe and at key stage 3
Table 6	Topics covered in sex education at AHS Oberstufe and at key stage 4

Section 2.3.2 *The System of Education in the United Kingdom* is based on a presentation and a subsequent conversation with the retired English school inspector Bob Thomas in July 2009.

Sections 2.3.3 *Sex Education in England* and 4.4 *Sex Education at the Heathland School – Case Study* are complemented with information gathered in several conversations with Mr. Chris Walsgrove, head of PSHE at the Heathland School and Mr. Tom Carbro, head of science at the Heathland School from October 2009 till May 2010.

9. Appendix

9.1. Complete Questionnaire



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Dear teachers and colleagues,

For my degree in Science and English at the University of Vienna I am writing a thesis on the topic of sex education in England.

It would help me greatly in writing that thesis if you would take the time to fill in the following questionnaire.

It goes without saying that I will keep your answers and details confidential.
Thank you very much for your help and support!

With kind regards,

Maria Magdalena Gmeiner
German language assistant at the Heathland School 2009/2010

**Questionnaire about
Sex Education in England**

**Target Group: Science Teachers at the
Heathland School 2009/2010
Wellington Road South, Hounslow
Middlesex, TW4 5JD, Great Britain**

This questionnaire was supervised by Mrs. Ao. Univ.-Prof. MMag. Dr. Sylvia Kirchengast and compiled for

the University of Vienna in Austria

<http://www.univie.ac.at/?L=2>

and in particular for the Department of Anthropology.

<http://www.anthropology.at/>

I would like to give my best thanks to Mrs. Sylvia Kirchengast, Mr. Tom Carbro and Mr. Chris Walsgrove for helping me with amendments to this questionnaire.

A) Questions Related to Teaching Sex Education in Science

1) When did you teach sex education for the first time? (e.g. spring term 2003)

2) When was the last time you taught sex education? (e.g. spring term 2003)

3) How often do you teach sex education in science?

every school year

every other year

every now and then / at irregular intervals

rarely

never

4) How do you personally feel about teaching sex education? You can tick more than one box.

comfortable

uncomfortable

good

bad

excited

very unpleasant

challenged

nervous

always looking forward to teaching sex ed.

uneasy

slightly embarrassed

highly embarrassed

I don't mind teaching sex education at all.

Teaching sex education is like teaching any other topic of the science curriculum because

Teaching sex education is different from any other topic because _____

I like it because _____

I don't like it because _____

I really enjoy it because _____

I dread it because _____

Please state your own opinion: _____

5) How do you get to know when (which year and which term) and what exactly you should teach in your science sex education lessons? You can tick more than one box.

from the headmaster

from the head of curriculum

from the head of science

from the deputy head of science

from science colleagues

from colleagues of other subjects

from the science books

from school assemblies

I rely on my personal judgement.

I rely on my experience as a teacher.

from the scheme of work (give where to find it) _____

from the national curriculum (give website) _____

from the internet (give websites) _____

other _____

6) Do you share with colleagues your material for sex education? Please give your reasons.

Yes, I do because _____

Usually I do because _____

Mostly I don't share because _____

No, I don't because _____

With some teachers I share material for sex education, with others not.

Please state your own opinion: _____

7) Do you discuss with colleagues the way you plan and structure your sex education lessons?

Yes, I do because _____

Usually I do because _____

Mostly I don't because _____

No, I don't because _____

With some teachers I talk about teaching sex education, with others not.

Please state your own opinion: _____

8) Do you share / discuss with colleagues your experiences of teaching sex education?

Yes, I do because _____

Usually I do because _____

Mostly I don't share because _____

No, I don't because _____

With some teachers I share my experiences, with others not.

Please state your own opinion: _____

9) Do you and your colleagues offer each other advice on how best to teach sex education?

Yes, we do because _____

Usually we do because _____

Mostly we don't because _____

No, we don't because _____

There are some teachers who give or take my advice, others not.

Please state your own opinion: _____

B) Questions Related to Teaching Science at the Heathland School 2009/10

1) Did you teach sex education in science this school year?

yes

no

If not, you don't need to answer the questions in section B). Please go straight to section C).

2) If yes, in which classes or sets and in which term did you teach sex education this school year?

_____ term (e.g. spring term)

_____ term

_____ term

3) How many lessons (including tests) did you devote to sex education with any given year or set? Please add which classes or sets you taught sex education to next to the number of lessons.

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

10 _____

11 _____

more than 11 _____

4) Which topics within sex education did you cover this school year in science? Please add the name of the sets or classes you taught sex education to next to the descriptors.

sexual reproduction

asexual reproduction

changes during puberty

the menstrual cycle

basics about hormones

hormones in more detail

sperm cells

egg cells

male reproductive organs

female reproductive organs

sexual intercourse

the route of the sperm cell to the egg cell

contraception

sexually transmitted diseases

pregnancy

teenage pregnancy

changes to the female body during pregnancy

the development of the foetus

twins

prenatal diagnostics

genetic disorders

abortion

premature babies

disabled babies

ways of giving birth
love and partnership
other _____

the effects of being a parent on everyday life
being mentally ready for raising a child

5) How would you describe the students' reactions and general behaviour in science lessons dealing with sex education? Please also state which year or set you taught. _____
You can tick more than one box.

excited	nervous
keen	extremely keen
bored	not interested
showing off their previous knowledge	not daring to talk or ask questions
not taking the lessons seriously	frequent giggling
paying more attention than usual	more quiet than usual
no difference to usual science lessons	different from usual science lessons

If you ticked different from usual science lessons, in what respect different? _____

other _____

If you taught sex education to more than one classes or sets, please answer question 5 again.
5) How would you describe the students' reactions and general behaviour in science lessons dealing with sex education? Please also state which year or set you taught. _____

excited	nervous
keen	extremely keen
bored	not interested
showing off their previous knowledge	not daring to talk or ask questions
not taking the lessons seriously	frequent giggling
paying more attention than usual	more quiet than usual
no difference to usual science lessons	different from usual science lessons

If you ticked different from usual science lessons, in what respect different? _____

other _____

6) Did you notice any difference between boys' and girls' reactions and their general behaviour in science lessons dealing with sex education? Please state which year or set you taught. _____

no difference between boys and girls

slight difference between boys and girls

huge difference between boys and girls

boys and girls were taught separately

If you noticed differences, how would you describe them? You can either use the descriptors from question 6 or use your own.

boys: _____

girls: _____

If you taught sex education to more than one sets or classes, please answer question 6 again.

6) Did you notice any difference between boys' and girls' reactions and their general behaviour in science lessons dealing with sex education? Please state which year or set you taught. _____

no difference between boys and girls

slight difference between boys and girls

huge difference between boys and girls

boys and girls were taught separately

If you noticed differences, how would you describe them? You can either use the descriptors from question 6 or use your own.

boys: _____

girls: _____

7) Do most parents know of their right to take their children out of sex education lessons?

yes

no

I think most parents know that.

I don't know if they are aware of it.

8) Did any parents take their children out of this year's sex education lessons in science?

yes

no

9) If yes, how many students were involved and in which classes or sets?

number of students _____

set _____

number of students _____

set _____

10) If yes, in which way did the parents approach you? Did they justify their decision? Please describe the scenario in your own words. _____

11) Which materials did you use for teaching sex education in science this year? Please (1) fill in the brackets giving the set or class you taught sex education to and (2) add extra information if asked for. You can tick more than one box.

books

please give title, author(s), publisher, year of publication and pages of books you used

()

()

films from school

please give title, briefly explain what the sequence was about and roughly the duration of the sequence(s) you showed in class

()

()

films from my personal collection

please give title, briefly explain what the sequence was about and roughly the duration of the sequence(s) you showed in class

()

()

material from the shared area of the Heathland School

please give the names of the documents used and the path how to find them

()

()

my own material

please describe that material briefly

()

()

experiments

please describe the experiments you carried out, the scientific background, aim and material needed for them

()

()

other

()

12) After having finished teaching sex education in science, in which way(s) did you test your students' knowledge? Please state which year or set you taught. _____
You can tick more than one box.

no tests at all

observing students' participation in class

random oral checks

an oral test for each student

If you ticked oral checks or tests please (1) name and briefly describe the topics the students were tested on and (2) write down the path where to find the test(s) in the shared area of the Heathland's computer network or where else you got the exam paper from. If part (2) is not possible, please (3) give examples of the kind of questions you asked in the oral check(s).

(1) _____

(2) _____

(3) _____

several short written tests

one written end of topic test

If you ticked written tests please (1) name and briefly describe the topics the students were tested on and (2) write down the path where to find the test(s) in the shared area of the Heathland's computer network or where else you got the exam paper from. If part (2) is not possible, please (3) give examples of the kind of questions you asked in the written test(s).

(1) _____

(2) _____

(3) _____

other ways of testing (please describe them in your own words)

If you taught sex education to more than one sets or classes, please answer question 12 again.
12) After having finished teaching sex education in science, in which way(s) did you test your students' knowledge? Please state which year or set you taught. _____
You can tick more than one box.

no tests at all

observing students' participation in class

random oral checks

an oral test for each student

If you ticked oral checks or tests please (1) name and briefly describe the topics the students were tested on and (2) write down the path where to find the test(s) in the shared area of the Heathland's computer network or where else you got the exam paper from. If part (2) is not possible, please (3) give examples of the kind of questions you asked in the oral check(s).

(1) _____

(2) _____

(3) _____

several short written tests

one written end of topic test

If you ticked written tests please (1) name and briefly describe the topics the students were tested on and (2) write down the path where to find the test(s) in the shared area of the Heathland's computer network or where else you got the exam paper from. If part (2) is not possible, please (3) give examples of the kind of questions you asked in the written test(s).

(1) _____

(2) _____

(3) _____

other ways of testing (please describe them in your own words)

C) Personal Questions

Finally, it would be helpful if you would provide the following information.

1) Gender male female

2) Year of birth _____

3) Nationality(ies) _____

4) Is English your mother tongue? yes no, my mother tongue(s) is (are)

5) Which subject(s) are you trained to teach? _____

6) When did you start working as a qualified teacher? (e.g. spring term 2003)

7) When did you start working at the Heathland School? (e.g. spring term 2003)

8) When did you start teaching science? (e.g. spring term 2003)

9) Did you work in any other professions before becoming a teacher? If so, which one(s)?

Thank you very much for your help and support!

9.2. Deutsche Zusammenfassung

Der Aufklärungsunterricht an Schulen ist seit Jahren ein heftig diskutiertes Thema. Eine Vielzahl an Studien beschäftigt sich mit der Qualität und dem Ausmaß des Sexualunterrichtes in Österreich, wobei verschiedenste Methoden und Verbesserungsvorschläge angesprochen werden. In einer globalisierten Welt wie der unseren drängt sich ein internationaler Vergleich förmlich auf. Das Beispiel England wurde für diese Diplomarbeit gewählt, weil es seit Jahren das Land mit der höchsten Rate an schwangeren Teenagern in Westeuropa ist. Da zwischen Sexualunterricht und Teenagerschwangerschaften ein enger Zusammenhang besteht, beschäftigt sich diese Arbeit mit Aufklärungsunterricht in England und einer Zielgruppe von 11 bis 16-jährigen Schülern. Als Fallbeispiel wurde die Heathland Schule in Hounslow, einem Stadtteil im Westen von London, gewählt.

Die Hypothese besagt, dass das Ausmaß des Sexualunterrichtes an Schulen in England geringer ist als jenes an Schulen in Österreich. Um Argumente für und gegen diese Theorie zu finden sowie weitere Forschungsfragen beantworten zu können, wurde eine dreiteilige Strategie angewendet. Zuerst wurden die englischen und österreichischen Lehrpläne für den Aufklärungsunterricht in der Sekundarstufe verglichen. Dabei wurde besonders auf Inhalt, Zeit für dieses Thema und Verpflichtung den Lehrplan einzuhalten, geachtet. Zweitens wurden 14 Unterrichtsstunden über Sexualkunde in der Heathland Schule beobachtet und analysiert. Drittens wurden 27 Fragebögen für Lehrer der Heathland Schule, mit einem Schwerpunkt auf Fragen zur Anzahl der Stunden an Aufklärungsunterricht, zu behandelten Unterthemen und zur Einstellung der Lehrer zu Sexualkunde, ausgewertet.

Der Vergleich der Lehrpläne zeigte, dass in England nicht in Biologie sondern in *Science* und *PSHE* Sexualkunde vermittelt wird. Zusätzlich wurden Unterschiede in der Einteilung der Altersgruppen sowie in der Zuordnung von Unterthemen zu den einzelnen Schulstufen deutlich. Manche der beobachteten Schulstunden ließen unter anderem an der Professionalität des Aufklärungsunterrichtes in *PSHE* zweifeln. Die Fragebögen zeigten, dass es deutliche Unterschiede in der Einstellung der *Science* und *PSHE* Lehrer zu Sexualkunde gibt. Beispielsweise empfanden fast die Hälfte der *PSHE* Lehrer unserer Stichprobe Aufklärungsunterricht als Herausforderung und 36,8 % gaben an, ihn nicht zu mögen, wohingegen kein einziger *Science* Lehrer einer der beiden Aussagen zustimmte.

Obwohl Unterschiede in der österreichischen und englischen Herangehensweise an Sexualkunde deutlich wurden, konnte ein geringeres Ausmaß an Sexualunterricht in Schulen in England nicht nachgewiesen werden. Daher musste die Hypothese verworfen werden.

10. Curriculum Vitae



Personal Details

Name	Maria Magdalena Gmeiner
Address	4320 Perg, Weinzierl 7, Austria
Email address	mmg7@gmx.at
Phone number	+43 650 541 00 11
Born on/in	September 11 th , 1984 in Linz
Nationality	Austria

Education

Since October 2004	University of Vienna: Biology and English with a teaching purpose
1999 – 2004	HBLA Perg, vocational school, secondary school upper level
1995 – 1999	HS I Perg, secondary school
1991 – 1995	VS Perg, primary school

Work Experience

October 2009 – May 2010	German language assistant at the Heathland School in London, UK
July – September 2007	Au pair stay in Cobham (Surrey UK), looking after three children
Since February 2007	Carrying out birthday parties for children and guided tours at the 'Haus des Meeres' in Vienna (museum and zoo)
Summer 2005, 06, 08	OEG Hainzl Hermann DI and Partner, Perg, internship at a freelance civil engineer, four weeks each
August 2004	Machland Feinkost-Konserven GesmbH, food production
June – August 2002	Hotel Föttinger (4 stars), Steinbach/Attersee, internship as a waitress

Language Skills

German	Mother tongue
English	Fluent in speech and writing
French	Basic knowledge

Further Skills

ECDL-exam, Microsoft Office, Windows XP, SPSS 18, accountancy, driving licence B, first aid

Leisure Activities

Volleyball and beach volleyball, snowboarding, running, yoga, cooking, reading, music, films