

The evolution of sex education and students' sexual knowledge in Finland in the 2000s

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Finland is probably the only country where sex education has been studied in two consecutive national surveys, in 1996 and 2006 directed at biology and health education teachers, and in 2000 and 2006 by measuring adolescents' sexual knowledge. In 2006, responses from teachers and students could be combined for 339 schools. The most important educational objectives of sex education in the 2000s were, based on teachers' reports, to educate students to act responsibly and to provide them with the correct facts. Among boys, sex education had a much more important role in relation to their sexual knowledge than among girls. For girls, performing well in school was a more important predictor of a higher level of sexual knowledge than the number of hours allocated to sex education in school. The level of students' sexual knowledge was promoted positively by teachers who wanted to teach attitudes of naturalness and tolerance toward sexuality, found sexual issues easy to talk about, told students of their own personal life, and used classroom techniques including drama and role-play methods and presentations, and lectures given by students themselves. In sum, Finland represents an advanced model of comprehensive sex education in Europe.

Introduction

Kirby, Laris, and Roller (2007) reviewed the impact of sex and HIV education programmes on behaviour through 83 studies from a variety of countries. The programmes were typically limited to a particular geographical area, or were somewhat dated, or did not analyse in depth the characteristics of effective programmes. Despite these limitations, evidence for the positive impact on behaviour of curriculum and group-based sex and HIV education programmes for adolescents and young adults was quite strong and encouraging. Two-thirds of the reviewed programmes had a significant positive impact on behaviour. These positive results were confirmed in a review of the effects and effectiveness of life skills-based education for HIV prevention (Yankah and Aggleton 2008).

Most countries have some type of documentation on their sex education programmes but usually lack evidence-based knowledge regarding the success or otherwise in the implementation of those programmes. In many cases, there is evidence that sex education programmes or recommendations for their implementation have almost not been enforced at all (e.g. in Greece; cf. Gerouki 2009). Based on the information gathered by the International Planned Parenthood Federation (IPPF) European Network (2006), sex education in many Catholic countries in Europe was either non-existent or was of a poor quality, even though some of these countries may have reported having mandatory sex education programmes. This observation indicates that it is important to study how sex

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50 education or sexual and relationship education programmes have been implemented in
51 national school systems.

52 The United Nations Educational, Scientific and Cultural Organisation (UNESCO
53 2009) has defined objectives for sexuality education as being:

- 54 ● to increase knowledge and understanding;
- 55 ● to explain and clarify feelings, values and attitudes;
- 56 ● to develop or strengthen skills; and
- 57 ● to promote and sustain risk-reducing behaviour.

58
59 These objectives meet also the criteria of comprehensive sex education. In the USA,
60 comprehensive sex education generally has much more limited scope; abstinence as
61 positive choice, with (sometimes reluctant) teaching about contraception and avoidance of
62 sexually transmitted infections (STIs) when sexually active.

63 It is not easy to find in the international literature any studies that have surveyed the
64 practical implementation of sex education programmes at a national level (e.g. in what
65 subjects and by whom education is provided, for how many hours, what themes are
66 included, what educational techniques are adopted). There are some data from the USA
67 both nationally (Duberstein Lindberg, Santelli, and Singh 2006) and regionally (Dodge et al.
68 2008). These studies have focused on reviewing increases or decreases in abstinence
69 education programmes in comparison with instruction about birth-control methods. In
70 addition, there have been surveys of schools in Hong Kong (Fok 2005), and interviews
71 among teachers in Greece (Gerouki 2007) and South Africa (Helleve et al. 2009).

72 There are a number of studies that have measured sexual knowledge among school
73 children. The lowest level of knowledge has been found in knowledge about STIs. In the
74 United Kingdom, in the eighth grade only 25% recognised the term ‘chlamydia’ and 44%
75 recognised ‘genital herpes’ (Westwood and Mullan 2006). In the USA, most adolescents
76 failed to respond correctly to items measuring reliable contraception and risks for STIs
77 (Carrera et al. 2000). In Sweden, chlamydia was identified by 77% and genital herpes by
78 42% (Sydsjö et al. 2006). Poor knowledge of STIs has been found also among school
79 children in Australia (Agius et al. 2006). In China, only 38% could identify three types of
80 STIs listed in the questionnaire and only 56% knew when to use condoms (Chen et al. 2008).
81 In sum, these studies provide evidence of poor quality of sex education in these countries.

82 In a report of 26 European countries, *Sexuality Education in Europe: A Reference*
83 *Guide*, by the IPPF and the WHO Regional Office for Europe, Nordic sex education was
84 described as representing an advanced model of a comprehensive sex education programme
85 in Europe (IPPF European Network 2006). Nowadays, Finland has integrated sex education
86 into health education; other Nordic countries have integrated it more often to biology.
87 Finland and Denmark have adopted *sex education* as an official term, while Sweden and
88 Norway employ the term *sexuality and relationship education*.

89 Finland is the only Nordic country where sex education has been studied and followed
90 up through two national surveys – in 1996 and 2006 – directed at biology and health
91 education teachers. In addition, adolescents’ sexual knowledge has twice been measured in
92 national sexual health knowledge quizzes, in 2000 and 2006. The results of these surveys are
93 reported in this article.

94 Sex and relationship education was first officially included in the Finnish school
95 curriculum in 1970, regulated by the National Board of Education and the Ministry of Social
96 Affairs and Health. During the 1970s and 1980s the scope of sexuality education increased
97 and minimum standards were enacted. At the same time, sexual knowledge improved
98 among adolescents, and teenage pregnancies decreased. The experts in the field have given

99 credit for this development in adolescent sexual health to improved sex education (Kontula
100 and Meriläinen 2007).

101 Schools and local health personnel, as well as ministerial-level authorities, cooperate in
102 providing sexuality education and information about sexual health issues. The Lutheran
103 Church has adopted a neutral stance on most issues of sexuality and contributes to sexuality
104 education in connection with confirmation classes at the age of 15. The Ministry of Social
105 Affairs and Health began publishing an annual sexuality education magazine in 1987, sent
106 via mail to all 16 year olds. Since 2000, it has been sent to all 15 year olds. The magazine
107 contains a sample condom and a separate letter to parents dealing with adolescent sexuality.
108 The attitudes of parents and young people towards the magazine were investigated twice,
109 and feedback was positive (Lottes and Kontula 2000).

110 There have also been several regional sexual health campaigns – so-called Fertility
111 Festivals – that have aimed at improving sexual health knowledge among youth and
112 providing motivation and tools for educators to improve sexual health regionally. There
113 have been annual condom advertisement campaigns on billboards, television advertise-
114 ments, and so forth.

115 Sexuality education begins early in Finland, with some elements being provided in
116 kindergarten and at Grades One through Six (ages seven to 12). In primary schools, teachers
117 are responsible for providing sexuality education in Grades One through Six. In these
118 grades, the sexuality education curriculum focuses on basic biological and emotional issues.
119 In parents' opinions, a suitable age for starting systematic sex education at school would be
120 10 or 11 years.

121 Each school has their own educational programme with some variation in their
122 approach to sex education. On a national level, the Ministry of Social Affairs and
123 Health and the National Research and Development Centre for Welfare and Health
124 (STAKES – since 2009, the National Institute for Health and Welfare) have initiated
125 various policies and campaigns. Among non-governmental organisations, the Family
126 Federation of Finland has been active in promoting sex education and presenting
127 campaigns in schools.

128 In the mid-1990s there was some reduction in school sex education as a result of reduced
129 enforcement of national regulations and a decline in the hours allocated to health and family
130 education. To a greater extent than in the early 1990s, sex education focused on biology.
131 Previously, sex education had been integrated especially into health education, family
132 education and biology (Kontula 1997).

133 At the turn of the millennium, the number of sex education lessons increased again.
134 The increase was brought about by a general emphasis on health education at schools and
135 by specific sexual education programmes. In the Basic Education Act (453/2001), health
136 education was defined as its own mandatory school subject. Health education
137 comprehensively covers sex education. At Grades Seven to Nine, sex education should
138 include – in addition to the basic knowledge in sexual health – information on
139 adolescents' physical, psychic and social development. It should also help students to
140 understand communication, human relationships, responsibility and mutual care in human
141 interaction and well-being.

142 The outcome of this above-mentioned legislation was a greater emphasis on health
143 education in schools and the introduction of specific sexuality education programmes.
144 School health services (school nurses) also have an important role in sex education
145 (Kontula and Meriläinen 2007).

146 The aims of the sex education project and this article are as follows:
147

- 148 1. to follow up the progress of sex education from 1996 to 2006 in Grades Seven to
149 Nine (the outcome of the renewal of mandatory health education curriculum into
150 sex education in the 2000s);
- 151 2. to follow up how the level of sexual health knowledge among adolescents (Grade
152 Eight/14–15 years old) changed between 2000 and 2006 (how do some relevant
153 variables explain differences in levels of sexual knowledge?);
- 154 3. to study how some applied features of sex education were related to the quality of
155 students' sexual health knowledge in 2006 in the eighth grade; and
- 156 4. to promote sex education in schools by encouraging them to participate in a
157 national competition (quiz) on sexual knowledge (materials and a report were sent
158 to each participating school and the best schools were promised a national award on
159 the quality of their sex education).

160 Results relating to the provision of sex education and sexual health knowledge are
161 presented and discussed, across the different types of sex education practices and the
162 quality of sexual health knowledge in participating schools. The objective is to evaluate
163 students' knowledge in various sexual areas, and, finally, to provide teachers with useful
164 material for providing sexuality education.
165

166 **Method**

167 This project includes two separate national surveys that were conducted among school
168 teachers and school children in Finland. Both survey projects were intended to be
169 nationally representative and their results have been followed up once.
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172 *School teacher surveys*

173 Surveys to teachers included all lower secondary schools with Grades Seven to Nine
174 (student ages: 13, 14 and 15) in Finland. On both occasions, in 1996 and 2006, Statistics
175 Finland mailed to each respective school a questionnaire. In 1996 it was addressed to
176 biology teachers (Kontula 1997), and in 2006 to health education teachers (Kontula and
177 Meriläinen 2007).
178

179 These specialist teachers had the main responsibility for sex education in their schools
180 in 1996 and 2006. On both occasions, teachers received instructions to discuss the
181 requested information with their relevant colleagues and to give a questionnaire to some
182 other teacher if she/he was in charge of sex education in their school. In 1996, 421 schools
183 responded, a response rate of 70%. In 2006, 518 schools took part, also being a response
184 rate of 70%.
185

186 *Student quizzes*

187 In 2000 and 2006 the Family Federation of Finland sent a letter to school health nurses in
188 every school with an eighth grade (students aged 14). The letter requested the school's
189 participation in the national sexual knowledge quiz (Kontula et al. 2001; Kontula and
190 Meriläinen 2007). If a school (school nurse) responded in the affirmative to this letter, it
191 was sent the material for the quiz, including a list of questions and the optical answer
192 sheets for each student. On both occasions (2000 and 2006), more than one-half of the
193 schools in Finland were willing to participate in the sexual knowledge quiz. In 2000, 401
194 schools took part involving a total of 30,241 students born in 1985. In 2006, 462 schools
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(58% of all schools in Finland) took part with 33,819 students born in 1991. From the total age cohort in Finland, about one-half of both boys and girls participated in the quiz.

After receiving and filing the high number of responses, the Family Federation of Finland sent to all participating schools feedback concerning their success in the national quiz. The most successful schools were given a public award and received certificates of honour, and the first three also received a grant for sex education.

In 2006, responses from teachers and students could be linked and combined in 339 schools where both teachers (Grades Seven to Nine) and students (eighth grade) had participated in the two separate surveys. The teachers were asked to give their permission to link the answers of the separate surveys together. Almost all teachers gave their permission.

Instruments of the project

The survey instrument for teachers in 2006 was a questionnaire that included a total of 286 items. Of these, 223 were identical to questions in the earlier 1996 questionnaire. The results of these items could be compared between 1996 and 2006 – they included the following:

- Information about the teacher – for example, her/his specialisation.
- Information about the school and its curriculum:
 - Persons responsible for providing health education.
 - Subjects where sex education was taught.
- Sex education in each school during the 2005/06 school year:
 - Total hours of sex education.
 - Teachers and other professionals assigned to teach sex education.
 - Experiences with sex education.
 - The contents of sex education in each grade.
 - Guidance in sexual health.
 - Teaching methods in sex education.
 - Sex education materials.
 - Collaboration with school health nurses and parents.
- Respondent's experiences with, and views of, sex education in the school:
 - Sex education materials.
 - Discussing sex with students.
 - Rated objectives in sex education in schools.
 - Willingness to participate in further training in sex education.
 - Future prospects of collaboration in sex education.

The core of the sexual health quiz questionnaire consisted of 75 questions that measured sexual knowledge.¹ These 75 questions were the same in both the 2000 and 2006 surveys for students in the eighth grade. Each question had four alternatives, of which only one was correct. Each correct answer earned one point and the points totalled 75 if all questions had been answered correctly.

While formulating these questions, and their four alternative responses, there was a limitation that the items should measure only (cognitive) knowledge and not any values or opinions; for example, of 'proper' behaviour. Every item had to be based on facts that were agreed among the experts in the field; accordingly, biological and sexual health facts were emphasised in the questionnaire.

An example of the questions is as follows:

246 *4. Male genitals include:*247 *1 a penis*248 *2 a penis and testicles*249 ***3 a penis, testicles and a prostate***250 *4 a penis, testicles, a prostate and a thyroid gland*

251 The correct alternative is highlighted in bold type. The idea was to introduce to students
 252 questions that were fairly difficult in order to get at differences in knowledge levels
 253 between respondents, and especially between the participating schools.

254 In 2006 the knowledge questions were grouped into the following categories (number
 255 of questions) and knowledge scales:

- 256 ● Childhood and puberty (10 questions).
- 257 ● Structure and function of sexual organs (14 questions).
- 258 ● Masturbation (five questions).
- 259 ● Sexual intercourse (nine questions).
- 260 ● Pregnancy (10 questions).
- 261 ● Contraception (15 questions).
- 262 ● Sexually transmitted infections (nine questions).

263 In addition to the 75 questions (three of which were not included in these scales)
 264 of knowledge, the questionnaire included questions regarding adjustment and performance
 265 at school, health education in the classroom, counselling from the school health nurse in
 266 sexual issues, opinions on the appropriateness of sexual relationships at that specific age,
 267 sexual desire and experiences, and experiences of sexual harassment.

270 **Results**271 ***Results of teacher surveys in sex education in schools***

272 The national teacher surveys of 1996 and 2006 provide a general view of the quality of sex
 273 education in Finland, as well as quantitative evidence of its evolution from the 1990s to the
 274 2000s. All in all, the results confirm a substantial increase (measured by hours) in access to
 275 sex education among students in the 2000s, compared with the 1990s.

276 In 2006, the subject of sex education was integrated with health education and biology.
 277 It was taught in the seventh and eighth grades in most schools (67–74%) by health
 278 education teachers. In the ninth grade it was most often taught (61%) by a biology teacher.
 279 In more than every third school, a school health nurse also taught sex education in the
 280 classrooms. One in every 10 schools invited an outside expert to provide sex education to
 281 students. In total, sex education did not vary much by region or population density.

282 Based on teachers' reports, the mean hours allocated to sex education almost doubled
 283 from 1996 to 2006, from 9.3 hours to 17.3 hours per semester (school year). In the seventh
 284 grade they increased from 2.5 hours to 5.9 hours, and in the eighth grade from 4.3 hours to
 285 8.7 hours. Due to this transition, there was a small decrease in the ninth grade from
 286 7.9 hours to 6.2 hours. In sum, in 2006 sex education had more hours and was provided to
 287 students who were one or two years younger than previously.

288 Sex education was usually available for each grade (Grades Seven to Nine) in all
 289 schools that reported having sex education in these surveys. Each individual school had its
 290 own educational programme, and so approaches to sexuality education varied somewhat.
 291 The total number of topics in sex education did not increase much from 1996 to 2006
 292 (from 31.3 to 35), but there was a major increase in the number of topics in the seventh
 293 grade.

grade and in the eighth grade due to health education becoming mandatory again in the 2000s (see Table 1). Many of the topics in sex education had been moved from the ninth grade to the seventh and eighth grades. These numbers increased from 3.9 to 9.8 in the seventh grade, and from 8.5 to 15.8 in the eighth grade. The resulting decrease in the ninth grade was from 19 to 9.3 sexual topics.

In 2006, most schools educated their seventh-grade students about sexual organs and functions, menstruation, ejaculation, puberty, emotional life and communication skills. In the eighth grade, most students learned about contraception, abortion, STIs and AIDS, intercourse, first coitus, masturbation, dating, emotional life, communication skills, sexual and gender minorities, sexual vocabulary, sources of sexual knowledge, sex in the media, sexual rights, sexual harassment, and sexual legislation. In comparison with 1996, knowledge of intercourse, contraception, STIs, and the social dimensions of sexuality had been moved from the ninth grade to the eighth grade and the issues related to reproduction from the ninth grade to the seventh grade. In the eighth grade, the greatest increase was found in educating about sexual harassment, sex in the media, sexual minorities, intercourse, and childhood sexuality.

In a great majority of schools, sex education was provided to students in groups where boys and girls were present together. The most commonly used teaching methods were formal classroom teaching, involving the use of videos and group discussions. Around

Table 1. Sexual topics reported to be covered in sex education in 1996 and 2006 (%).

Topics in sex education	1996 (<i>n</i> = 413)			2006 (<i>n</i> = 459)		
	Seventh grade	Eighth grade	Ninth grade	Seventh grade	Eighth grade	Ninth grade
Sexual organs and functions	22	38	96	66	52	47
Menstruation	41	49	90	80	52	42
Ejaculation	25	40	89	70	56	36
Conception	14	33	97	25	51	62
Pregnancy and birth	5	20	98	9	34	66
Contraception	22	60	97	31	87	51
Abortion	7	36	96	11	62	53
STIs, AIDS	11	49	96	15	74	50
Puberty	50	57	90	88	58	36
Intercourse	15	46	92	24	82	43
First coitus	14	47	76	27	83	26
Masturbation	18	39	69	50	68	22
Child sexuality	7	13	35	47	47	14
Masculinity and femininity	15	27	74	44	55	25
Dating	28	56	82	54	86	32
Emotional life	25	49	81	68	78	32
Communication skills	20	31	60	62	60	25
Sexual life in adulthood	3	17	65	9	42	39
Sexual and gender minorities	5	22	74	18	66	37
Sexual vocabulary	9	26	72	39	71	38
Sources of sexual knowledge	13	26	71	40	67	38
Sex in the media	6	18	43	36	61	27
Sexual morals and ethics	11	28	75	22	57	42
Sexual rights	—	—	—	35	65	26
Sexual harassment	5	16	40	27	67	26
Sexual legislation	3	14	57	25	65	30

one-half of the schools distributed flyers that dealt with sexual issues and contraception, and 40% of schools gave their students free condom samples. Sometimes, great variation in methods was applied, including games and quizzes. In addition, one in 10 schools had organised a special school-wide event on sexual issues.

In both 1996 and 2006, teachers were provided with a list of 14 educational objectives in sex education in their school. Teachers were asked to rank these objectives from one to 14 according how important they felt each teaching objective was. Comparison of data from 1996 and 2006 revealed very little difference in how teachers ranked educational objectives in sex education (see Table 2).

In both surveys, teachers considered the most important objective in sex education to be to educate students to act responsibly and to provide them with correct sexual facts. The five most important educational aims include that teachers want to provide their students with knowledge, tolerant attitudes, self-esteem, a sense of responsibility and respect for emotions. A take-home message here is that Finnish teachers trust that their students are qualified to make their own sexual judgements and they assumed that their students are responsible enough to take care of their sexual issues.

From an international perspective, an interesting finding was a clear absence in the educational objectives of educating for sexual abstinence; this was the lowest ranked objective. More than one-half of the teachers had ranked sexual abstinence as last (rank 14) on the list, in contrast to what might well be found in some other countries.

Four-fifths of teachers considered it 'easy' to talk about sexual issues to their students, and 40% reported it as being 'very easy'. Only 3% of teachers believed that sex education could tempt students to initiate their sexual experiences too young. Almost one in two teachers had talked to students about their personal life and experiences; one-third had participated in some further training in sex education in the two years preceding the survey.

Table 2. Mean numbers of rankings of educational aims in sex education.

Educational aim	1996	2006
1. Educating to act responsibly	2.5	2.8
2. Providing correct facts	3.1	3.4
3. Learning attitudes of naturalness toward sexuality	4.6	4.7
4. Educating the total personality	4.6	5.2
5. Emphasising the importance of emotions	6.5	6.2
6. Ability to establish balanced relationships	6.3	6.9
7. Ability to make independent decisions	8.3	7.2
8. Teaching tolerance	6.6	7.4
9. Learning good communication	8.3	8.0
10. Preventing teenage pregnancies	8.4	8.3
11. Learning to understand the expectations of the other gender	9.5	10.2
12. To experience sex as a nice and stimulating issue	10.4	10.8
13. To learn that casual relationships are unsatisfactory	10.3	10.9
14. Educating to sexual abstinence	12.5	12.4
<i>n</i>	405	498

Note: A low number signifies a high ranking for importance of aim. In the original scale, each of these 14 educational aims was ranked from one to 14. A ranking of one signifies the most important educational aim and 14 signifies the least important aim.

Results of the sexual health knowledge quiz

In the sexual health knowledge quizzes in 2000 and 2006, the maximum score obtainable was 75. In 2000 the proportion of correct answers nationally was 66% (49.6 points), and in 2006 was 69% (51.7 points). The average score of sexual knowledge increased slightly, and girls' knowledge in 2006 was still considerably higher than that found amongst boys (55 points vs. 48 points). Boys had been able to shrink this substantial gender gap by 1.7 points from 2000 to 2006. In 2006, four-fifths of girls and one in two boys were able to answer correctly at least two-thirds of the questions. The level of sexual knowledge did not vary significantly across different regions of the country.

The items where girls most markedly scored better than boys were related to menstruation, breasts, leucorrhoea, infertility, contraceptive pills, emergency contraception, abortion, clitoris, and risks for STI infection; these are mainly issues that are more related to female than male biology and reproduction.

Questions measuring sexual knowledge included seven categories (Table 3); of these, the best test results were achieved in knowledge about masturbation, followed by contraception. The greatest improvement across time was found among boys in the categories on masturbation and sexual organs. Both boys and girls had the poorest knowledge in issues related to intercourse and STIs, even though these themes are usually discussed in sexuality education in school. Girls performed much better than boys in questions that dealt with puberty and pregnancy.

Of the individual items in which the need for better sexual knowledge was greatest, the most important were knowledge of the hymen, menstrual cycle and risk of pregnancy, the relative reliability of birth-control pills and condoms, alternatives for testing for possible STIs, STIs without symptoms, pain related to first intercourse, and the typical time delay from the first intercourse to the first orgasm among girls.

Amongst the potential determinants of sexual knowledge that were available for analysis, school performance was very important. Better performance in school was associated with higher scores in sexual knowledge. Among girls, this association was even much more important than sex education. Understandably, sexual knowledge can be more easily adopted if a student has good cognitive skills. Teenagers may apply these skills also in their social circles and while observing and adopting knowledge from the media and from a variety of information sources.

Table 3. Proportion of correct answers on the different sub-scales of sexual knowledge by gender in 2000 and 2006 (%).

Scale	2000 correct answers			2006 correct answers			Number of questions
	Boys	Girls	Total	Boys	Girls	Total	
Puberty	52	72	62	55	72	63	10
Sexual organs	61	70	66	68	73	70	14
Masturbation	72	86	79	79	89	84	5
Intercourse	48	56	52	51	59	55	9
Pregnancy	66	80	73	68	79	74	10
Contraception	70	80	75	72	80	76	15
STIs	50	59	54	55	62	58	9
<i>n</i>	14,888	15,012	29,900	16,698	16,689	33,387	

Boys got far lower points in sexual knowledge tests even when their success at school matched that of the girls; presumably girls have more options in compiling their sexual knowledge than do boys. The number of hours in sex education was more strongly related to sexual knowledge among boys than girls. Only those boys who had good grades and who had received several hours of sex education at school got as many points in sexual knowledge tests as girls got on average. If boys did not perform well in school and did not receive much sex education, their sexual knowledge was generally very poor.

Interest in sexual experiences was not related to sexual knowledge, as might have been expected. Among girls, experiences of intercourse and the desire to have them were not associated with their level of sexual knowledge. Among the girls who desired intercourse, but had not yet experienced it, sexual knowledge was somewhat poorer. Among boys, those who already had experiences of intercourse had the lowest level of sexual knowledge. They had not had a true motivation to get acquainted with cognitive sexual knowledge, even though they had had motivation to have sexual experiences.

What kind of sex education improved sexual knowledge among school children?

From the 2006 data it was possible to study the associations between some of the components or features of implemented sex education and levels of sexual knowledge among students in the same schools – 339 schools in all.

A simple association between the quality of sex education and the level of sexual knowledge was found, as expected. Sex education was first categorised into three equal categories by combining number of hours in sex education with the numbers of reported topics covered in education. Sex education was rated into the category ‘good’ if there had been at least six hours of sex education in a year, including a minimum of 19 different sexual topics (maximum was 26). Sex education was ‘poor’ if the number of these topics was lower and sex education consisted of three to five hours, or if sex education, regardless of the number of topics, consisted of only one or two hours during the previous year.

In the schools where the quality of sex education was rated as being good, around 40% of students scored at least 55 points in the sexual knowledge test. If the quality of sex education was poor, only about 20% of students achieved this score. The quality of sex

Table 4. Distributions of total scores on the sexual knowledge test by the average grades (4–10) in the respondent’s last school report.

	Total score	Grades in the respondent’s last school report				Total
		8.5–10	7.5–8.4	6.5–7.4	<6.5	
Girls	0–37	1.4	3.4	6.8	10.0	3.5
	38–50	8.5	17.7	27.1	32.7	16.6
	51–60	40.8	49.5	48.7	43.0	45.8
	61–75	49.3	29.4	17.4	14.3	34.1
	Total	100	100	100	100	100
Boys	<i>n</i>	6054	6454	3050	560	16,118
	0–37	8.6	9.7	16.3	26.4	12.6
	38–50	19.9	32.7	44.3	47.7	34.3
	51–60	51.4	48.7	34.6	23.6	43.4
	61–75	20.1	8.9	4.8	2.2	9.7
Total	100	100	100	100	100	
<i>n</i>		3527	6553	4720	1104	15,904

491 education (at least as assessed by quantity in these ways) appears to have clear links with
492 sexual knowledge among school children.

493 The data also permitted an analysis of many other associations between aspects of sex
494 education and the level of sexual knowledge of the students in these very same schools.
495 The responses of teachers were contrasted with the success of the students in the
496 knowledge test. The following features of sex education were positively associated with
497 higher levels of sexual knowledge among the students in the participating schools:

- 498 ● Nomination of the teacher who was responsible for sex education in the school.
- 499 ● A very important aim of sex education at the school was to teach sexual tolerance.
- 500 ● A very important aim of sex education at the school was to teach attitudes of
501 naturalness toward sexuality.
- 502 ● The teacher considered sexual issues very easy to discuss with students.
- 503 ● A male teacher in sex education (more topics and hours).
- 504 ● Applied teaching methods were in most cases drama and role-playing.
- 505 ● Applied teaching methods were in most cases drafting and writing-up lectures and
506 lessons.
- 507 ● The teacher had talked fairly frankly of his/her own life in relation to sex education
508 hours.
- 509 ● Free condoms/samples were provided for students in school.
- 510

511 The level of students' sexual knowledge was promoted positively by teachers who wanted
512 to teach attitudes of naturalness and tolerance toward sexuality, found sexual issues easy to
513 talk about, told students something of their own personal life, distributed free condom
514 samples, and in the classroom applied drama and role-play methods and presentations and
515 lectures by the students themselves.

516 In sum, more hours allocated to sex education, and a fair number of topics combined
517 with an open and relaxed atmosphere during teaching resulted in higher levels of sexual
518 knowledge among students. Ease and tolerance appear to be key concepts that promote the
519 kind of sex education that helps students to understand and adapt the education to their
520 own lives.

521 Discussion

522
523 These results verify and complement the image of Finnish sex education that emerged from
524 the IPPF European Network (2006) report. Sex education in Finland is comprehensive. In
525 2001, sex education again became mandatory for Grades Seven through Nine (ages 13–15),
526 as part of health education. In the future, teachers qualified to teach health education will
527 need to have a special university authorised education, which involves 60 'ECTS credits'.
528 This should further improve the quality of sex education.

529
530 Sexuality education in Finland falls within health education, which is mandatory under
531 the Basic Education Act. The Finnish National Board of Education has defined the
532 minimum standards required, and these are included within the curriculum for health
533 education. Sexuality education is also integrated into certain other curricula besides health
534 education – biology in particular.

535 Sex education is now introduced at earlier grades than previously and the numbers of
536 hours of education have increased. Hours allocated to sex education in the seventh and
537 eighth grades and the number of topics discussed in these grades almost doubled from
538 1996 to 2006. Teachers did not report any major difficulties in implementing sex education
539 in their schools. They base their educational objectives on teenagers' ability to behave

responsibly. In teachers' reports, educating students to sexual abstinence was the least popular objective in sex education in Finland. Here, the objectives in Finnish sex education contradict strongly with those of some other western countries.

There are other follow-up results that support the view that the quality of sex education has truly improved a great deal in Finland since the 1960s (Kontula 2009). National sex surveys among the adult population have included retrospective questions including assessments of the sex education received by each age cohort while the respondents were still in school. By timing these assessments to around the age of 15 in each cohort, it was found that the proportion of people who received enough sex education in school was 15–25% in the 1960s, but increased to more than 50% in the 1980s. The latest figure was around 70%. By taking into account these follow-up results of national sex education, one can speculate that these positive assessments of sex education will show even higher numbers in future surveys.

One of the strengths in Finland has been the cooperation between the teaching and health authorities in sexuality education for the young. In addition to their important role in sex education in classrooms, school health nurses are available in each school for their students in counselling in all sorts of issues related to sexuality. They also provide students with condoms and contraceptive pills, and serve as a link to public healthcare system.

From a sexual rights perspective, policy-makers have made considerable progress in guaranteeing young people their right to sexual knowledge and information (Lottes and Kontula 2000). In the report of reproductive health behaviour of young Europeans, published by the Council of Europe (Kontula 2004), favourable values and social norms in sexual issues in society and open and liberal sexual policy and related public discussion of sexual issues are among the key factors that improve sexual and reproductive health throughout Europe.

Specific challenges in sex education have included the low level of knowledge about STIs and intercourse. This finding is in line with studies of STIs in the United Kingdom, the USA, Sweden, Australia and China (Westwood and Mullan 2006; Carrera et al. 2000; Sydsjö et al. 2006; Agius et al. 2006; Chen et al. 2008). It seems to be difficult to motivate adolescents to adopt information about STIs; the issue seems often too far removed from their real interests. In any case, knowledge of STIs was found to be better in Finland than in countries where comparable results were available.

Another great challenge for sex education is boys, whose level of sexual knowledge lags behind that of girls and for whom school sex education is more closely associated with their knowledge than it is for girls. In the United Kingdom, similar findings have been explained by the content of sex and relationship education that is too focused on feminine in comparison with masculine sexual issues (Measor 2004; Strange, Oakley, and Forrest 2004). In sum, the poorer sexual knowledge among boys could be a result of at least the following reasons:

- Boys achieve sexual maturity approximately one year later than girls.
- Boys receive less sexual knowledge from home, especially from their mothers.
- Scales of sexual knowledge were more focused in this study on the specific feminine aspects of sexuality (23 questions on female aspects vs. nine questions on male aspects).
- Girls' cognitive superiority/better school performance in adolescence.
- Boys do not always want to reveal their true knowledge in their responses (a significant portion of boys clown around in their responses).
- Boys often show a symbolic and even loud opposition to sex education because of its excessively feminine-focused approach.

589 It is important to look for open-minded solutions to improve sexual health knowledge
590 among boys who lag behind girls in knowledge. School sex education is even more
591 important for boys than for girls because boys are less likely to have alternative sources of
592 relevant information about sexual issues. Girls who may not have a serious current interest
593 or desire to have sexual experiences nevertheless usually have a high level of sexual
594 knowledge, if they have high cognitive skills in their school work.

595 If a true aim will be to provide boys with as much information as girls, the content of
596 sex education needs to be revised. Sex education should pay more attention to sexual
597 issues in which boys are especially interested. These include the size of the penis, sexual
598 initiative-taking, communication in sexual interaction, shyness, jealousy, what to think
599 while having intercourse, physiology of intercourse, masculine sexual disorders, and so
600 forth (Hilton 2001; Centerwall 1995).

601 In 2006, all participating schools received their scores in sexual knowledge and their
602 position in the national quiz and competition. They also received materials for feedback on
603 the correct answers intended for the students and, finally, a comprehensive report (185
604 pages) of the survey project. It is assumed that this project will help increase the level of
605 sexual knowledge in participating schools. Liinamo (2005) demonstrated in another
606 national survey among school children that the level of sexual knowledge improved
607 significantly in schools that participated in the previous sexual health quiz in 2000.

608 A major limitation of this study is that it covered only sexual knowledge. The study did
609 not include information about how much sexual values, motivations and skills possibly
610 evolved among school children from the 1990s to the 2000s. If the objective was to predict
611 how teenagers will behave sexually, such information would be very valuable.

612 To date, it is only possible to look for associations between improved sex education
613 and teenage abortions in the 2000s. Statistics show a significant decrease in teenage
614 abortions in the 2000s. One can assume that improvements in sex education have had a
615 role in this evolution. The present sex education and project model might be effective also
616 in other countries while promoting more comprehensive sexual knowledge and a higher
617 quality of sexual health to teenagers.

619 Note

620 1. A copy of the full questionnaire is obtainable from the author.
621

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