



Article

Teachers' and pupils' perspectives on homosexuality: A comparative analysis across European countries

International Sociology
2019, Vol. 34(4) 471–519

© The Author(s) 2019

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/0268580919854295

journals.sagepub.com/home/iss



Kristof De Witte 

Katholieke Universiteit Leuven (KU Leuven), Belgium; Maastricht University, the Netherlands

Kaat Iterbeke

Katholieke Universiteit Leuven (KU Leuven), Belgium

Oliver Holz

Katholieke Universiteit Leuven (KU Leuven), Belgium

Abstract

This article offers the first large-scale comparative analysis of pupils' and teachers' perspectives on homosexuality using two waves (2013 and 2017) of self-collected data through questionnaires issued in eight European countries: Belgium, the Netherlands, Germany, the UK, Spain, Poland, Hungary and Turkey. Using these unique data, the authors examine to what extent differences prevail across countries, what mechanisms explain the differences, and how the differences change over time. The results indicate significant differences across countries. Moreover, although a positive trend can be observed between the two waves of the survey, in some countries the general climate towards homosexuality is reversing.

Keywords

Comparative study, homosexuality, pupil level, secondary education, teacher level

Corresponding author:

Kaat Iterbeke, Katholieke Universiteit Leuven (KU Leuven), Leuven Economics of Education Research, Naamsestraat 69, Leuven, 3000, Belgium.

Email: kaat.iterbeke@kuleuven.be

Introduction

Homonegativity remains a burning issue in many Western societies. In 2014, a large-scale EU LGBT (lesbian, gay, bisexual and transgender) survey demonstrated that the majority of lesbian, gay, bisexual and transgender individuals felt discriminated, particularly in education and employment, hindered to enjoy their fundamental rights, and often victim of harassment and violence (European Union Agency for Fundamental Rights, 2014). Moreover, in 2015, although general attitudes are evolving towards more tolerance, the Eurobarometer survey on discrimination revealed that a significant share of the European population still felt not at ease having their children in relationship with an individual of the same sex or seeing homosexuals show affection in public (TNS Opinion & Social, 2015).

Individual characteristics play a role in the attitudes and perspectives on homosexuality (Barron et al., 2008; Donaldson et al., 2017; Herek and Capitanio, 1996; Steffens and Wagner, 2004; Van den Akker et al., 2013; Whitley, 2009). It has been observed that older, less educated persons, as well as individuals with strong religious and traditional values, more often have a negative attitude towards homosexuality. On the other hand, knowing a homosexual individual, holding liberal political party preference, being open to experience and the level of urbanization increase the propensity to accept homosexuality. There are also clear gender differences as, on average, women hold a more favourable attitude than men towards homosexuality. In addition, attitudes towards gay men are often more hostile than towards lesbians (Davies, 2004; Herek, 2002; Steffens and Wagner, 2004). Whitley (2001) revealed that strong gender-role beliefs (e.g. stereotypes about men and women) are negatively correlated to attitudes towards homosexuality. Next to individual characteristics, there are strong differences in homosexuality across countries, which might be related to system characteristics (Andersen and Fetner, 2008; Gerhards, 2010; Hooghe and Meeusen, 2013; Štulhofer and Rimac, 2009; Van den Akker et al., 2013), secularization (Halman and Van Ingen, 2015), and migration (Van der Bracht and Van de Putte, 2014). It has been argued that countries' laws on homosexuality, de-traditionalization and modernization processes (such as economic development) and religious climates and cultures have an impact on attitudes towards homosexuality.

The majority of earlier social science research has focused on the general attitudes of the population towards homosexuality (such as Gerhards, 2010), the influence on the workplace (Einarsdóttir et al., 2015), homonegativity in higher education (Worthen, 2012) and attitudes of pre-service teachers (Robinson and Ferfolja, 2001). Szalacha (2004) investigated the behavioural comfort level with gay, lesbian and bisexual individuals of Massachusetts secondary school students as part of a large evaluation of a school-based programme addressing the safety of sexual-minority students. To the best of our knowledge, this is the first study to compare the perspectives of both teachers and pupils on homosexuality within secondary education. Examining perspectives on homosexuality within an education context is highly relevant as discrimination and bullying at school have serious impacts on the academic career of students (European Union Agency for Fundamental Rights, 2014; Kosciw et al., 2011; Poteat et al., 2009). As schools and teachers aim at diffusing social norms, they exert distinct influence on pupils' attitudes and perspectives on homosexuality. Furthermore, schools are considered important areas

of socialization as pupils' attitudes can be influenced by the attitudes held by their peers (Herek, 1988). Accordingly, it is important to study these perspectives on homosexuality within the educational setting, both for students and teachers.

This article contributes to the literature by providing the first large-scale comparative analysis of teachers' and pupils' perspectives on homosexuality using data from questionnaires collected in eight European countries. We obtained data on pupils and teachers in the same schools, such that the analysis can be done for both perspectives. Furthermore, by combining a 2013 and 2017 wave of the questionnaire, we identify changes in the pupils' and teachers' perspectives and attitudes towards homosexuality within the eight European countries. It should be noted that an explorative approach is adopted in the article and hence, a priori, we do not imply any specific pattern across countries to occur. Moreover, as we do not know which individual characteristics influence the perspectives of students and teachers in particular, a set of demographic characteristics will be considered in order to examine what potentially drives the observed differences. Using a rich and innovative panel dataset, we examine three research questions: (1) *To what extent do differences prevail between European countries in the teachers' and pupils' perspectives on homosexuality?* (2) *Which mechanisms (at the individual level) explain the differences in perspectives?* (3) *And how do the perspectives across countries change over time?*

The remainder of this article is structured as follows. The next section presents a brief review of the setting and institutional framework related to homosexuality in the eight European countries for which data were collected. Next, we discuss the data collection, descriptive statistics and methodology. The fourth section provides the results of the ceteris paribus and inter-temporal analyses, followed by a discussion and general conclusion.

Setting and institutional framework in eight European countries

This article benefits from a unique and self-collected European survey that aims to have a better understanding of the (non-)acceptance of homosexuality in schools, thereby targeting teachers and pupils in European countries with diverging perspectives and attitudes towards homosexuality, i.e. Belgium, Germany, the Netherlands, the United Kingdom, Spain, Poland, Turkey and Hungary. In order to get an idea of how tolerant the general population is, value orientations in the eight European countries are analysed using the 2008 and 2017 European Value Survey (EVS). The same proxy measures for tolerance/discrimination attitudes are used as in Gerhards (2010), i.e. the justification of homosexuality and being opposed to having homosexuals as neighbours. In the EVS, representative samples of the adult population of the country, 18 years and older, were approached for face-to-face interviews. The national samples for the measures consist of more than 1000 respondents in the 2008 survey and more than 600 for the 2017 survey. Table 1 demonstrates mean values of both measures to reveal a similar pattern across countries in which Turkey, Hungary and Poland appear less tolerant compared to the western countries, Belgium, the Netherlands, Germany, the United Kingdom and Spain.

Table 1. Discrimination/tolerance towards homosexuality using EVS data.

Country	Homosexuality is Never (1)/ Always (10) Justified		Opposing having homosexuals as neighbours, Yes (1)/ No (0)	
	2008	2017	2008	2017
Belgium	5.83		0.07	
Netherlands	7.53	8.53	0.11	0.05
Hungary	3.26		0.29	
Germany	5.70	7.72	0.17	0.08
Poland	2.86	3.91	0.51	0.30
Turkey	1.48		0.91	
United Kingdom	5.40		0.11	
Spain	6.01	6.93	0.05	0.13

Note: EVS 2017 does not include data on Belgium, Hungary, Turkey and the UK.

Differences in legislation might both shape and reflect levels of tolerance towards homosexuality (Slenders et al., 2014). Therefore, while all countries share the epistemology of homosexuality (Kong, 2016), we discuss the setting anno 2017 and institutional framework related to homosexuality in each of the eight countries next (based on De Witte et al., 2018).¹

The Netherlands, having one of the most progressive legal frameworks of the world, has always been considered a pioneer on homosexual rights and protection of the LGBTQ community.² It was the first country to legalize same-sex marriage in 2001. In addition to marriage, LGBTQ people can adopt children and lesbians have access to IVF treatments as well. However, in recent years, the standing of the Netherlands as a pioneer in extending rights has diminished as compared to other European countries (IGLA-Europe, 2018). Public opinion, on the other hand, has consistently reached high rankings in surveys, such as the EVS and Eurobarometer Discrimination Survey, classifying the Netherlands as one of the most homosexual-tolerant nations (Keuzenkamp and Kuyper, 2013; Mazrekaj et al., 2019). In 2012, the Dutch government required schools to include the topics 'sexuality' and 'sexual diversity' to the final attainment levels, i.e. knowledge, attitudes and skills all students should master by the end of a particular grade (Bron et al., 2015). Nevertheless, despite the guidelines, a survey among Dutch students showed implementation to be effectively lagging behind (Van Vliet, 2013). As an explanation, one may point at the absence of LGTBQ issues in teacher training programmes such that teachers were and still are insufficiently prepared to teach these new topics.

Belgium is a progressive country in terms of homosexual rights as homosexuals have obtained similar rights as heterosexuals. Among others, they have the opportunity to marry (Belgium was the second country to legalize same-sex marriage in the world) and enter into registered domestic partnerships, adopt children and are protected by anti-discrimination legislation (Eeckhout and Paternotte, 2011). Furthermore, although sexual diversity is an integrated topic in the Belgian education system as, for example, the

topics ‘sexual identity and orientation’ are explicitly mentioned in the final attainment levels, and references to sexual orientation are integrated in the Flemish curricula and school regulations, it is often individual initiatives that tend to support dealing with homosexuality the most (Vlaams Ministerie van Onderwijs en Vorming, 2010). Nevertheless, in spite of this, a large-scale study, known as the Zzzip² project, measuring the quality of life of LGBTQ people in the Flemish region of Belgium, observes that although most people appear to be tolerant towards LGBTQ people, homophobia and discrimination of homosexuals still prevail in the Belgian society (Steunpunt Gelijkekansenbeleid, 2011). One crucial recommendation of the study was to (further) raise awareness of sexual diversity.

Germany, despite having one of the largest LGBTQ populations in Europe, was one of the last Western European countries to legalize same-sex marriage in 2017 (European Union Agency for Fundamental Rights, 2017; Steffens and Wagner, 2004). However, as a same-sex registered partnership was legal long before, it should be noted that not all countries define a registered partnership in the same way. That is, the rights, obligations and legal actions of a registered partnership in Germany are very similar to marriage. One may then ask why it has taken so long to open up for same-sex marriage. Homosexuality has been the subject of a heated public and political debate in Germany during recent years as conflicting trends arose between strong liberal public opinions, aiming to achieve equality and recognition of homosexuals in legal issues, and the rise of right-wing movements. These conflicting trends are also observed in the German decentralized education system. Although education curricula reflect different attitudes and developments in how sexual diversity is dealt with in classrooms, a comparative review between two systems reveals they do demonstrate a common approach, i.e. the topic of homosexuality is not well integrated in either of them (Drägenstein et al., 2018).

In the **United Kingdom**, attitudes towards equality of homosexuals have significantly improved in the last decades (Roberts et al., 2017). While in the early 1980s, according to the British Social Attitudes Survey, more than half of the population thought same-sex relations to be ‘always wrong’ (Social and Community Planning Research, 1983), attitudes towards homosexuality rank now as the most dramatic change in British public opinion. On the legal front, homosexuals have most of the legal rights of heterosexuals, such as the right to marry and adopt children. However, despite progressive politico-legal changes and developments in socio-cultural attitudes, homophobic attitudes still remain (Ahmad and Bhugra, 2010; McCormack, 2014). This is observed in education as well. In spite of the national curriculum stating teachers should take account of their duties under equal opportunities legislation that covers, among others, sexual diversity, and the number of initiatives by professional organizations, homophobic bullying still prevails. In addition, in Stonewall’s 2014 Teacher Report, a majority of teachers reported pre-service teacher training on LGBTQ issues to be inadequately defined and provided (Stonewall, 2014).

Although **Spain** was traditionally characterized by a strong religious background rejecting homosexuality, and public opinion only viewing traditional sex roles as tolerable, social attitudes towards homosexuality have been seen to improve steadily during the last decades (Guasch, 2011). The legislation of same-sex marriage in 2005, however, was a turning point in the public attitude as it brought to the fore a lot of debate and social

action against its approval. So despite the progress achieved on legal and other fronts, homosexuality is still found to be marginalized in Spanish society and homophobic incidents, in particular in the larger cities, still occur (Soriano Gil, 2005). Also in education, homonegativity and homophobic bullying are found to prevail, which may be partly explained by the lack of pedagogical measures, i.e. Spanish curricula of education do not include the topic of sexual diversity. Accordingly, the existing initiatives usually take place outside the regular school setting, such as for example, the FELGTB association which provides a guide for children how to tell their parents about their sexuality (FELGTB, 2011).

In **Poland**, homosexuals have always been treated differently than heterosexuals. Although homosexuals are allowed to serve in the military and same-sex sexual activity is legal, Polish law still forbids, among others, a registered partnership, same-sex marriage, adoption and IVF treatment for lesbians. Although the acceptance of non-discrimination rules towards sexual minorities was mandatory for EU accession in 2004, homosexuals continue to encounter discrimination, either as an individual or when gathering collectively as activists (ILGA-Europe, 2018). Main drivers behind the homonegativity in Poland are the prevalence of strong traditional and religious beliefs, the nation's politics, which is dominated by right-wing administrations, and the rising political demands of LGBT organizations (Górska et al., 2017). Even though Polish public opinion on homosexual marriage has been improving, social attitudes remain rather negative as compared to other countries. In education, the curriculum neglects the topic of sexual diversity such that homosexual students regularly cope with negativity and bullying (Piekarski, 2014). For many students, coming out holds risks which are often considered too high, such that they are forced to hide their sexuality.

Despite the progress made on equal treatment, homosexuals in **Hungary** still face some form of legal discrimination. Whereas registered domestic partnership has been legalized, same-sex marriage is still forbidden by the present right-wing government and, hence, homosexual couples cannot benefit from all legal rights available to married heterosexual couples (ILGA-Europe, 2019). Public attitudes on the issue, largely driven by religious convictions, strongly diverge. In 2016, opinion polls found only a minority (36%) of Hungarians in favour of same-sex marriage. Adoption rights, on the other hand, were much more supported with 46% in favour. An absolute majority of respondents believed that homosexuals were discriminated on a regular basis (Budapest Pride, 2016). Although these LGBT issues could be addressed in school, the government still does not prioritize sexual diversity as a topic to be included in the curricula of teacher training institutions and schools (Grossman, 2013). With respect to this, in 2000, the Labrisz Lesbian Association drew up a programme 'Homosexuality and Knowledge' in which learning content and workshops for teachers are offered. Unfortunately, due to the government's continued efforts to suppress such initiatives, one may ask how it will continue to exist in the future.

Finally, heavily influenced by conservative and religious values, the **Turkish** government is not willing to create legislation against discrimination and human rights violations based on sexual orientation and identity. Homosexuals do not have the right to enter in a registered partnership, marry, adopt children as a couple, or serve in the military. Even despite the requirement for EU accession to protect LGBT rights, traditional family

structure and morality embedded in the state create barriers (Bakacak and Oktem, 2014). Accordingly, homosexual individuals in Turkey are not protected legally and face physical and social violence, in both public and private spheres, as empirical studies indicate negative attitudes towards homosexuals among the population (e.g. Oksal, 2008). Moreover, in Turkish educational settings, homosexuality is also often regarded as taboo and to this date, has not been added to the curriculum (Ertürk and Güray, 2018).

From this brief review of the perspectives and attitudes towards homosexuality, it may be concluded that homonegativity still prevails in the different European societies. This article aims to explore this matter in more detail within an educational context.

Data collection and descriptive statistics

The data are self-collected through questionnaires issued in the eight European countries. Two questionnaires were designed for the teachers and pupils, respectively (see Appendix VI). As the questionnaires were intended to measure individual and country perspectives on homosexuality, they did not aim to capture potential school effects. In each country, the same questionnaire was issued in the official language of the country. We targeted the same schools for teachers and pupils. To reduce selection bias, no financial or other incentive was given to the participants. The sampling of the schools proceeded in two steps. First, we contacted an institution of higher education that offers a teacher training programme in each of the different countries. Second, these higher education institutes sent out the questionnaire among secondary schools they have a long collaborative relationship with. This is beneficial for the research design as (a) we believe that this procedure minimizes the selection bias, as higher education institutions do not particularly collaborate with schools because of the homosexual attitudes of the teachers or the students; and (b) the strong relationship between the higher education institutes and the secondary schools guarantees a successful administration of the questionnaires, and minimizes attrition of students and teachers. However, one shortcoming of this procedure is that it may lead to a selected sample of schools. That is, if higher education institutions have more frequently a relationship with the higher-performing or more tolerant schools, we may expect to estimate upper bounds of attitudes and perspectives on homosexuality. Accordingly, given that schools are not randomly selected into the sample, the study does not offer a representative country analysis. Nevertheless, it can be considered as the first aggregated research across the eight European countries and, hence, the first large-scale comparative analysis of teachers' and pupils' perspectives on homosexuality.

The data collection in the participating schools was performed by means of an online survey from the end of January to the beginning of March 2017. The 2017 survey resulted in 3594 pupil respondents and 1742 teacher respondents.

We combine this survey with an earlier wave of the survey, which was conducted in a similar way. In particular, in 2013 we collected similar pupil and teacher level data in the same set of countries (see Appendix I for descriptive statistics on the 2013 data). Combining the data allows us to obtain an inter-temporal perspective. We will restrict our analysis to a set of questions which were phrased identically in both surveys.

Table 2. Descriptive statistics of all pupil-related variables (2017 survey).

Background characteristics		N (%)	Questions (score)	Mean (SD)
Country	Belgium	449 (12.49)	Knowledge (0–1)	0.526 (0.247)
	Germany	557 (15.50)	Bullying (1–6)	2.512 (1.031)
	Hungary	254 (7.07)	Perception on parents' opinion being gay (1–6)	4.345 (1.824)
	Netherlands	983 (27.35)	Perception on teacher's behaviour (1–6)	2.422 (1.703)
	Poland	163 (4.54)	Neutral question (1–6)	5.408 (1.35)
	Spain	310 (8.63)	Discuss girl topics with mother (1–6)	3.383 (1.926)
	Turkey	183 (5.09)	Discuss boy topics with father (1–6)	3.792 (1.81)
	United Kingdom	695 (19.3)	Reliable knowledge sex education at school (1–6)	3.35 (1.674)
	Gender	Male (1)	1629 (45.33)	Difference in role and motives girls and boys (1–6)
Female (0)		1965 (54.67)	Trust partners is important (1–6)	5.432 (1.185)
Age	< 13 years	622 (17.37)	Males limited knowledge on female partner (1–6)	3.278 (1.365)
	13–14 years	1427 (39.86)	Knowledge different relations boys and girls (1–6)	4.193 (1.484)
	15–16 years	1026 (28.66)	Equality of homosexuals (1–6)	5.093 (1.306)
	> 16 years	505 (14.11)	Comfortable with homosexuality (1–6)	4.847 (1.471)
Location	Countryside	190 (5.34)	Fall out if friend were gay (1–6)	1.875 (1.556)
	Village	1358 (38.14)		
Sexuality	City	2013 (56.53)		
	Asexual	60 (1.68)		
	Bisexual	185 (5.18)		
	Don't know	400 (11.21)		
	Heterosexual	2865 (80.27)		
	Homosexual	59 (1.65)		

Note: Descriptive statistics for the 2013 survey are provided in Appendix I. Descriptive statistics per country are provided in Appendix II.A.

Table 2 presents the descriptive statistics of all pupil-related variables used in the subsequent analyses. Descriptive statistics per country are included in Appendix II.A. The questionnaire was filled out by secondary school pupils with a majority of females and respondents aged between 13 and 15 years. For the questions, a lower (higher) score denotes a stronger disagreement (agreement) with the statement. The largest number of respondents originates from the Netherlands (983), followed by the United Kingdom (695) and Germany (557). A majority (80%) considers him or herself to be heterosexual, while approximately 11% do not know their sexual preference yet. The variables *Equality of homosexuals*, *Comfortable with homosexuality* and *Bullying* are continuous variables that are constructed as the mean value of multiple underlying questions. A low score for the first two variables corresponds with a rather negative perspective and attitude towards homosexuality, a high score with a positive perspective and attitude. That is, the higher

Table 3. Descriptive statistics of all teacher-related variables (2017 survey).

Background characteristics		N (%)	Background characteristics		N (%)
Country	Belgium	170 (9.76)	Education	PhD (doctoral)	68 (4.10)
	Germany	309 (17.74)		Master degree (4 or 5 years)	661 (39.82)
	Hungary	59 (3.39)	Bachelor degree (3 years)	882 (53.13)	
	Netherlands	137 (7.86)	Secondary education	49 (2.95)	
	Poland	98 (5.63)	Type school	General education	1129 (66.69)
	Spain	691 (39.67)		Vocational education	102 (6.02)
	Turkey	195 (11.19)		Mixed	462 (27.29)
	United Kingdom	83 (4.76)			
Gender	Male (1)	508 (29.16)	Questions (score)		Mean (SD)
	Female (0)	1234 (70.84)	Having children (0–1)		0.559 (0.497)
Age	< 30 years	271 (15.93)	Perception on parents' opinion (1–6)		3.402 (1.753)
	30–39 years	525 (30.86)	Neutral question (1–6)		5.607 (1.075)
	40–49 years	509 (29.92)	General atmosphere homosexuals improved (1–6)		4.04 (1.299)
	> 50 years	396 (23.28)	Pupil outing problematic (1–6)		2.151 (1.427)
Location	Countryside	149 (8.63)	Importance gender issues in school (1–6)		3.382 (1.625)
	Village	394 (22.81)	Teach girls and boys differently (1–6)		1.878 (1.310)
	City	1184 (68.56)	Equality of homosexuals (1–6)		5.275 (1.159)
Sexuality	Asexual	48 (2.93)	Comfortable with homosexuality (1–6)		5.257 (1.232)
	Bisexual	16 (0.98)	Fall out if friend were gay (1–6)		1.336 (1.081)
	Don't know	10 (0.61)			
	Heterosexual	1461 (89.25)			
	Homosexual	102 (6.23)			

Note: Descriptive statistics for the 2013 survey are provided in Appendix I. Descriptive statistics per country are provided in Appendix II.B.

the *Equality of homosexuals* score, the more likely a student tends to agree with homosexuality being natural and equal to heterosexuality, homosexuals having to same rights as heterosexuals, and the right to get married and adopt children. See Appendix III for a more detailed description of the questions and the corresponding Cronbach's alpha for each constructed variable. The variable *Knowledge* is constructed as the mean value of answers on seven questions related to the awareness of the situation of homosexuals. The variable is continuous and rescaled from 0 to 1. The higher the score, the better the knowledge of pupils on homosexuality is. All other questions used in the analyses are ordinal variables, ordered from 1 to 6.

Table 3 presents the descriptive statistics of all teacher-related variables, while the descriptive statistics per country are provided in Appendix II.B. In line with the general feminization of the teaching profession, the majority of respondents are female (71%). Teachers' answers are given by means of a six-point Likert scale, ranging from strongly disagree (1) to strongly agree (6). The data from Hungary, the United Kingdom and

Poland should be interpreted with caution as these countries only account for a small number of respondents. Furthermore, the majority of teachers indicate themselves to be heterosexual (89%), have children (56%) and hold a Bachelor degree (53%). Sixty-nine percent of teachers teach in the city and 67% in general education. As for pupils, the variables *Equality of homosexuals* and *Comfortable with homosexuality* are the mean value of answers on different questions and therefore, continuous variables. All other questions are ordinal variables, ordered from 1 to 6.

Methodology

This article examines to what extent differences prevail across European countries in the teachers' and pupils' perspectives on homosexuality, which underlying mechanisms may explain these differences, and how these differences change over time. Therefore, we proceed in three steps. First, we estimate *ceteris paribus* effects on the general perception of homosexuality in the eight different countries. Accordingly, the impact of each individual characteristic on the perspective on homosexuality is examined, holding all other effects constant. We use similar regression models for both the teachers and pupils. In particular, ordinary least squares (OLS) regressions are applied for all model specifications. The model can be specified as follows:

$$Y_i = \alpha + \sum_j \beta_j X_{j,i} + \sum_k \beta_k C_{k,i} + u_i \quad (1)$$

where the dependent variable (Y_i) measures the general perspective and attitude of individual i on homosexuality using three dependent variables discussed above, i.e. *Equality of homosexuals*, *Comfortable with homosexuals* and *Fall out if friend were gay*. The model includes a categorical variable for countries (C_i) with the aim to account for all cross-country variation. Furthermore, to improve the precision of the estimates, we add different sets of control variables. First, we include individual characteristics (X_i), which consist of the age, gender, level of urbanization and sexual orientation of individual i . Next, to account for acquiescence bias in the answering pattern across individuals, i.e. some individuals tend to (dis)agree with the questionnaire question regardless of the content (Winkler et al., 1982), we add a neutral question (*'I am comfortable with a man and woman holding hands in public'*). Acquiescence bias threatens the validity of attitude ratings as it is suggested to be a source of correlated errors that can bias scale scores. Therefore, we account for the possibility of such bias by including the neutral question. Agreeing or disagreeing with both this question and the contradictory question *'I am comfortable with two women or men holding hands in public'* would then suggest acquiescence. For the estimations at pupil level, the model additionally incorporates parents' opinions (*'It wouldn't be any problem for my parents if I were gay'*), teacher's behaviour (*'Teachers at my school deal differently with heterosexuals and homosexuals'*), the degree of bullying in school and the knowledge on the situation of homosexuals (see Appendix III for variable constructions). Gender-related statements (*'I receive reliable knowledge about sex education at school'*, *'There are fundamental differences*

in roles and sexual motives of girls and boys towards sexual activity, *'Trust between partners is important*', *'Male adolescents have limited knowledge of their female peers*, *'I discuss girls' topics with my mother [e.g. discussion about clothes, children, make-up,...]'* and *'I discuss boys' topics with my father [e.g. sports, politics, daily news,...]'*) are included as well.³

For the estimations at teacher level, the model includes the type of school (i.e. general, vocational or mixed education) the teacher is teaching at, the level of education obtained, a dummy for having children and questions related to gender (*'I think a student outing himself/herself as homosexual would be problematic at our school*', *'Our school attaches importance to gender issues*' and *'I teach boys differently to girls*'), parents' opinions (*'It wouldn't be any problem for my parents if I were gay*') and the knowledge on the situation of homosexuals (*'In my opinion, the general atmosphere [e.g. newspapers, law, public opinion] towards homosexuality is improving*').

In a second step, we estimate a separate model specification that combines the pupil and teacher level data. This allows us to estimate the interaction between these two groups of respondents. A dummy variable indicating whether the respondent is a pupil is included in order to capture differences in answering patterns between teachers and pupils. This analysis is particularly relevant as previous research reveals younger individuals are generally more tolerant towards homosexuality than older individuals (e.g. Steffens and Wagner, 2004). Moreover, by means of a subgroup analysis per country, we are able to disentangle a potential general pattern from country-specific ones.

In a third step, we examine inter-temporal trends in the differences across countries. Combining the 2013 and 2017 data, we estimate the following OLS model:

$$Y_i = \alpha + \sum_j \beta_j X_{j,i} + \sum_k \beta_k C_{k,i} + \sum_l \beta_l cohort_i * C_{l,i} + u_i \quad (2)$$

where the dependent variable (Y_i) measures the answer to gender-related statements (such as *'I receive reliable knowledge during sex education at school*'; *'Our school attaches importance to gender issues*'). The regression model at pupil level consists of country fixed effects (C_i) and individual's characteristics (X_i), such as the gender, age, living place and a dummy indicating the cohort (2013 or 2017). To examine a potential trend in answering patterns across countries, an interaction term between the categorical variable for countries and the cohort is included. At the teacher level, we apply a similar regression model with two other covariates added, i.e. a dummy for having children or not and the level of education obtained.

Results

Ceteris paribus effects

Pupil level. First, we examine the perspective on homosexuality by a pupil level analysis with *Equality of homosexuals* as a dependent variable. After controlling for gender-related statements and a neutral question, 47% of the variation in the perspective on equality of homosexuals is explained by the variables. The first column of Table 4

Table 4. Ceteris paribus analysis for teachers and pupils.

Level of analysis	Equality of homosexuals			Comfortable with homosexuality			Fall out if friend were gay		
	Pupil	Teacher	Pupil and teacher	Pupil	Teacher	Pupil and teacher	Pupil	Teacher	Pupil and teacher
Germany	0.115 (0.0730)	-0.0158 (0.100)	0.127** (0.0601)	0.189** (0.0752)	0.286*** (0.101)	0.234*** (0.0720)	-0.259** (0.109)	-0.0854 (0.124)	-0.302*** (0.0787)
Hungary	-0.541*** (0.0928)	-0.616*** (0.152)	-0.859*** (0.0801)	-0.769*** (0.0955)	-0.178 (0.153)	-0.687*** (0.0960)	0.118 (0.138)	0.0954 (0.187)	0.200* (0.105)
Netherlands	0.000894 (0.0661)	0.0890 (0.121)	0.261*** (0.0575)	-0.0257 (0.0680)	0.327*** (0.122)	0.390*** (0.0689)	0.157 (0.0985)	0.411*** (0.149)	-0.0833 (0.0754)
Poland	-0.427*** (0.116)	-1.357*** (0.129)	-1.012*** (0.0865)	-0.298** (0.119)	-0.401*** (0.131)	-0.319*** (0.104)	1.045*** (0.172)	0.0495 (0.160)	1.050*** (0.113)
Spain	0.274*** (0.0845)	-0.0915 (0.0919)	0.155** (0.0601)	0.287*** (0.0870)	0.354*** (0.0929)	0.312*** (0.0721)	0.230* (0.126)	0.00391 (0.113)	0.0548 (0.0788)
Turkey	-0.119 (0.113)	-0.962*** (0.127)	-0.862*** (0.0804)	-0.0167 (0.116)	-0.811*** (0.129)	-0.602*** (0.0964)	-0.409** (0.168)	0.375** (0.157)	0.169 (0.105)
UK	-0.0229 (0.0799)	-0.0475 (0.131)	0.00790 (0.0676)	0.182** (0.0822)	0.372*** (0.132)	0.353*** (0.0810)	-0.205* (0.119)	0.0451 (0.161)	-0.0639 (0.0886)
Gender (male)	-0.319*** (0.0494)	-0.227*** (0.0513)	-0.369*** (0.0323)	-0.307*** (0.0508)	-0.146*** (0.0519)	-0.434*** (0.0387)	0.392*** (0.0736)	0.104* (0.0633)	0.340*** (0.0423)
< 13y/<30y	0.129** (0.0573)	-0.167** (0.0749)		0.0708 (0.0472)	-0.156** (0.0758)		-0.00288 (0.0684)	0.112 (0.0736)	
15-16y/40-49y	0.0646 (0.0459)	0.0297 (0.0596)		0.0761 (0.0590)	-0.0582 (0.0603)		-0.0102 (0.0855)	0.0712 (0.0926)	
> 16y/>50y	0.0515 (0.0602)	0.0398 (0.0661)		0.111* (0.0620)	-0.00598 (0.0669)		0.00362 (0.0898)	0.178** (0.0817)	
Countryside	-0.245*** (0.0812)	0.0524 (0.0820)	-0.160** (0.0641)	-0.199** (0.0836)	0.0338 (0.0829)	-0.0250 (0.0768)	-0.123 (0.121)	0.0697 (0.101)	-0.00229 (0.0840)
Village	-0.0134 (0.0425)	-0.00301 (0.0581)	-0.0271 (0.0365)	-0.0644 (0.0438)	0.0213 (0.0587)	-0.0317 (0.0438)	0.0391 (0.0634)	0.0760 (0.0717)	0.00287 (0.0479)

Table 4. (Continued)

Dependent variable	Equality of homosexuals		Comfortable with homosexuality		Fall out if friend were gay	
	Pupil	Teacher	Pupil	Teacher	Pupil	Teacher
Level of analysis						
Asexual	0.0567 (0.148)	0.000477 (0.134)	0.0664 (0.152)	-0.0753 (0.135)	0.0560 (0.220)	0.127 (0.165)
Bisexual	0.295*** (0.0820)	-0.240 (0.244)	0.454*** (0.0844)	-0.177 (0.246)	-0.0516 (0.122)	-0.0573 (0.301)
Don't know	0.00103 (0.0580)	-0.323 (0.321)	0.131** (0.0597)	-0.124 (0.325)	0.00703 (0.0864)	1.324*** (0.397)
Homosexual	0.355*** (0.154)	0.230** (0.0995)	0.460*** (0.159)	0.164 (0.101)	-0.314 (0.230)	0.0491 (0.123)
Bullying	-0.00425 (0.0183)		-0.00100 (0.0188)		0.0698** (0.0273)	
Knowledge	0.601*** (0.0789)		0.475*** (0.0812)		-0.615*** (0.118)	
Parents' opinion being gay_2	0.453*** (0.0835)	0.488*** (0.0808)	0.430*** (0.0860)	0.507*** (0.0818)	-0.263** (0.125)	-0.280*** (0.0999)
Parents' opinion being gay_3	0.927*** (0.0738)	0.502*** (0.0762)	0.824*** (0.0759)	0.505*** (0.0771)	-0.360*** (0.110)	-0.329*** (0.0942)
Parents' opinion being gay_4	1.087*** (0.0767)	0.613*** (0.0861)	1.024*** (0.0789)	0.644*** (0.0871)	-0.515*** (0.114)	-0.322*** (0.106)
Parents' opinion being gay_5	1.298*** (0.0717)	0.602*** (0.0872)	1.271*** (0.0739)	0.620*** (0.0882)	-0.550*** (0.107)	-0.414*** (0.108)
Parents' opinion being gay_6	1.483*** (0.0614)	0.685*** (0.0824)	1.494*** (0.0632)	0.641*** (0.0834)	-0.563*** (0.0916)	-0.257** (0.102)
Teacher's behaviour_2	-0.0411 (0.0554)		-0.0433 (0.0571)		0.292*** (0.0826)	
Teacher's behaviour_3	-0.173*** (0.0549)		-0.132*** (0.0565)		0.351*** (0.0818)	

(Continued)

Table 4. (Continued)

Dependent variable	Equality of homosexuals		Comfortable with homosexuality		Fall out if friend were gay	
	Pupil	Teacher	Pupil	Teacher	Pupil	Teacher
Teacher's behaviour_4	-0.0732 (0.0734)		-0.0445 (0.0756)		0.395*** (0.109)	
Teacher's behaviour_5	0.128 (0.0799)		0.0465 (0.0822)		0.447*** (0.119)	
Teacher's behaviour_6	-0.0955 (0.0633)		0.00122 (0.0651)		1.057*** (0.0943)	
Children		-0.144*** (0.0542)		-0.110** (0.0549)		0.0643 (0.0670)
Pupil						0.514*** (0.0509)
Other control	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2904	1386	2904	1386	2904	1386
Adjusted R ²	0.471	0.442	0.490	0.497	0.196	0.086
			-0.0945** (0.0388)		-0.391*** (0.0465)	

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Variables controlled for at teacher level: level of education, type of school, set of questions (neutral question, general atmosphere homosexuals improved, pupil outing problematic, importance gender issues in school, teach girls and boys differently). Variables controlled for at pupil level: set of questions (neutral question, discuss girl topics with mother, discuss boy topics with father, reliable knowledge sex education at school, difference in role and motives girls and boys, trust between partners is important, males have limited knowledge on female partner). Variables controlled at pupil and teacher level: neutral question. Reference categories: Belgium; 13- to 14-year-olds/30- to 39-year olds; city; heterosexual; parents' opinion being gay_1; teacher's behaviour_1.

presents the distinct differences between the European countries. Pupils in Hungary and Poland tend to have a significantly more negative perspective on homosexuality compared to pupils in Belgium (which serves as a reference category), whereas pupils in Spain have a more positive perspective. Pupils in Germany, the United Kingdom, Turkey and the Netherlands do not have a significantly different perspective on equality of homosexuals to Belgian pupils. Boys respond 0.32 points lower on the equality measure than girls do, pupils younger than 13 have a tendency to respond more positively than 13- to 14-year-olds whereas pupils from the countryside respond more negatively than those from the city. Homosexual and bisexual pupils answer with 0.36 points and 0.30 points, respectively, more positively than heterosexuals. Parents' opinion on homosexuality has a significant positive correlation with the equality perception and so does the greater awareness on the situation of homosexuals.

Second, the fourth column of Table 4 presents the results for using *Comfortable with homosexuality* as the dependent variable, which measures how comfortable a pupil is with the concept of homosexuality (e.g. *'I do not have a problem with two boys holding hands'* and *'I do not have a problem with two girls holding hands'*). We observe similar significant correlations of the living place, sexual orientation, parents' opinion and the knowledge of the pupil as in the previous model. Appearing rather comfortable with the concept of homosexuality, German pupils score 0.19 points higher, Spanish pupils 0.29 points higher, British pupils 0.18 points higher, whereas Hungarian and Polish pupils score 0.77 points and 0.30 points lower, respectively on the measure than Belgian pupils. Again, boys answer more negatively.⁴

Third, we examine if children would fall out with their best friends if they outed themselves as gay (i.e. *'I would fall out with my best friend if she/he came out as gay or lesbian'*). After controlling for a set of observed covariates, in Germany, Turkey and the UK, pupils are more likely to disagree with the statement than in Belgium, whereas in Poland and Spain pupils agree significantly more, scoring 1 point and 0.23 points higher, respectively. Boys are more likely to fall out with their best friend than girls. Lastly, two interesting findings may be derived from the model, i.e. the more strongly pupils sense their teachers to deal differently with homosexuals and the higher they indicate the degree of bullying to be, the higher the propensity will be to fall out with their best friend.⁵

Teacher level. We repeat the above analysis at the teacher level. *Equality of homosexuality*, *Comfortable with homosexuality* and the statement *'I would break with my best friend if he/she came out as gay or lesbian'* act again as dependent variables. Results from the three model specifications are presented in the second, fifth and eighth columns of Table 4. After controlling for a set of covariates such as the type of school the teacher is teaching at and level of education obtained, we observe that in Poland and Turkey the general perspective of teachers on homosexuality is significantly more negative compared to Belgium (reference category), whereas in Germany, Spain, the UK and the Netherlands teachers feel more comfortable with homosexuals. Male teachers seem to have a more negative perspective on equality of homosexuals, are less comfortable with the concept and have a higher propensity to fall out with their best friend if she/he came out as gay. Accordingly, male teachers significantly score 0.23 points lower on the *Equality* measure, 0.15 points lower on the measure *Comfortable with homosexuality* than female

teachers and 0.10 points higher on the measure *Fall out if friend were gay*. If the sexual orientation is homosexual, the teacher perceives the equality of homosexuals more positively than heterosexual teachers, rating the measure 0.23 points higher. Contrasting findings arise from the models when examining the effect of age, i.e. teachers younger than 30 years old seem significantly to have a more negative perspective on equality and appear less comfortable with it than older teachers, whereas teachers older than 50 years tend to have a higher propensity to fall out with their best friend. If teachers are parents themselves, they seem to perceive equality of homosexuals more negatively and are less comfortable with homosexuality as they score 0.14 and 0.11 points lower on the measures than teachers without children. Finally, the parents' opinion on homosexuality tends to have a significant positive impact on general perspectives on homosexuality.

Pupil and teacher level. We combine the pupil and teacher level data to examine whether differences in the answering patterns between teachers and pupils exist. The results suggest that pupils tend to have a slightly more negative perspective on the equality of homosexuals (0.09 points lower), are less comfortable with homosexuality (0.39 lower) and significantly more likely to fall out with their best friend if he/she were gay than teachers would (0.51 higher). The analysis also reveals a clear distinction between two sets of countries. In Germany, the Netherlands, Spain and the United Kingdom, the general perception on homosexuality appears rather more positive compared to Belgium, whereas in Hungary, Poland and Turkey, positive attitudes seem to lag behind. By means of subgroup analyses for all countries separately, as presented in Appendix IV, we are able to identify whether the negative perspectives of pupils as compared to teachers hold for all countries separately as well. Computing a chi-square test to examine whether significant differences between the country-specific pupil coefficients are present, we find that the more negative pupil perspective reoccurs in all countries, except for Turkey. That is, Turkish pupils have a more positive perspective on the equality of homosexuals (0.38 higher), are more comfortable with homosexuality (0.40 higher), and are significantly less likely to fall out with their best friend if he/she were to come out as gay than their teachers (0.28 lower).

Inter-temporal analysis

Pupil level. Combining the survey waves of 2013 and 2017 enables us to explore the inter-temporal trends and dynamic differences in students' answering patterns across countries. An OLS regression is performed with the following gender-related statement as the dependent variable, *'I receive reliable knowledge about sex education at school'*. We control for the age, gender, living place and country variables. The results in the first column of Table 5 indicate significant changes in the answering patterns across countries. In 2017, pupils in all countries have a significantly higher propensity to agree with the statement than in 2013, i.e. they now perceive to gain more knowledge about sex education at school than before as there is an 0.30 increase in the score. In Germany, however, while in 2013 pupils perceived to receive more reliable knowledge about sex education compared to Belgian pupils, now the reverse is true as German pupils score 1.18 points lower.⁶ On the other hand, Spanish and Polish pupils now seem to perceive

Table 5. Inter-temporal country analysis (combined 2013 and 2017 wave).

Level of analysis	Pupil level		Teacher level	
	Reliable knowledge about sex education at school	Knowledge on different relations boys and girls	Student outing him/herself is problematic	School attaches importance to gender issues
Germany	0.315*** (0.106)	0.544*** (0.0956)	1.922*** (0.351)	-0.949** (0.374)
Hungary	-0.845*** (0.173)	0.145 (0.156)		
The Netherlands	-0.466*** (0.100)	0.0495 (0.0903)	1.292*** (0.296)	-0.445 (0.316)
Poland	-0.386** (0.156)	0.493*** (0.141)		
Spain	-1.543*** (0.261)	0.334 (0.235)		
Turkey	-0.921*** (0.192)	-0.649*** (0.173)		
UK	0.322* (0.169)	0.182 (0.152)		
Year 2017	0.302** (0.125)	0.0439 (0.113)	0.163 (0.333)	0.149 (0.355)
Germany * 2017	-1.175*** (0.151)	0.337** (0.136)	-1.347*** (0.389)	0.938** (0.415)
Hungary * 2017	-0.844*** (0.217)	0.151 (0.196)		
Netherlands * 2017	-0.450*** (0.139)	-0.0753 (0.125)	-1.324*** (0.352)	0.172 (0.375)
Poland * 2017	-0.327 (0.219)	-1.114*** (0.197)		
Spain * 2017	0.247 (0.290)	-0.321 (0.261)		
Turkey * 2017	-1.684*** (0.250)	0.549** (0.226)		
UK * 2017	-0.164 (0.203)	0.477*** (0.182)		
Other control	Yes	Yes	Yes	Yes
Observations	5213	5213	667	667
Adjusted R ²	0.130	0.075	0.108	0.068

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Variables controlled for at teacher level: age, gender, teaching place, having children and level of education; Variables controlled for at pupil level: age, gender and living place. Reference category: Belgium.

similar reliable knowledge about sex education at school as compared to Belgian pupils than before. Hungarian, Dutch and Turkish pupils still have a lower propensity to agree with the statement than Belgian pupils do.

In order to examine the robustness of the changes in answering patterns across countries, we perform the same inter-temporal analysis, however, with a different statement as the dependent variable, *'I know a lot about different kinds of relationships between boys and girls'*. Although no significant overall changes in the answering patterns can be observed, the results show that, in comparison to the 2013 wave, Turkish and British pupils are more likely to agree with the statement than in Belgium in the 2017 wave. On the other hand, Polish pupils are now less likely to agree with the statement due to a decrease of 1.11 points in the score.

Teacher level. The inter-temporal analysis at teacher level does not include Hungary, Poland, Spain, Turkey, and the UK due to an insufficient number of observations in the 2013 dataset. The third column of Table 5 presents the results from a regression with the statement *'I think a student outing him/herself would be problematic at our school'* as the dependent variable. Controlling for country variables, being a parent, the level of education and teaching place, Belgian teachers do not seem to perceive a student outing him/herself as gay significantly differently in 2017. However, compared to 2013, German and Dutch teachers significantly disagree more with the statement as compared to Belgian teachers. Next, a second regression analysis is performed with *'Our school attaches importance to gender issues'* as the outcome. The results demonstrate a significant change in the answering patterns. Whereas Dutch teachers do not seem to answer differently than Belgian teachers in both years, German teachers do. That is, while German teachers found schools to attach less importance to gender issues than Belgian teachers in 2013, a significant increase of 0.94 points of greater agreement with the statement is observed for German teachers as compared to Belgian teachers in 2017.

Robustness test

There is a possibility that individuals' outcomes for the measures *Equality of homosexual* and *Comfortable with homosexuality* converge to the mean, while responses are actually clustered at the high and low extremes. To test for this, the ceteris paribus analyses for both measures are performed for the following two subgroups, i.e. those individuals who agree or strongly agree (Likert mean score ≥ 5) with all statements included in the measures and those who disagree or strongly disagree (Likert mean score ≤ 2). The results of this robustness analysis suggest that the significant differences in answering patterns across countries still exist, but are less strong (see full details in Appendix V). Nevertheless, similar significant differences in answering patterns across countries can be observed for the 'agree to strongly agree' subgroup, which, moreover, includes the majority of observations from the dataset. This gives confidence to our earlier results.

Discussion and conclusion

This article offered the first large-scale comparative analysis of pupils' and teachers' perspectives on homosexuality using a repeated cross-section of self-collected data

through questionnaires issued in eight European countries: Belgium, the Netherlands, Germany, the UK, Spain, Poland, Hungary and Turkey. Using these unique datasets, we aimed at answering three research questions i.e. (1) *To what extent do differences prevail between European countries in the teachers' and pupils' perspectives on homosexuality?* (2) *Which mechanisms (at the individual level) explain the differences in perspectives?* (3) *And how do the perspectives across countries change over time?*

As a response to the first research question, we observed significant differences across countries after controlling for a rich set of observed heterogeneity. Respondents in Poland, Hungary and Turkey perceived homosexuality more negatively than in Belgium, whereas respondents in Germany, the UK, Spain and the Netherlands had a more positive perspective on homosexuality. These results are in line with previous research comparing differences in attitudes across European countries. At the country level, Gerhards (2010) as well as Štulhofer and Rimac (2009) argued that both the modernization and the cultural heritage of countries may be used to explain the differences observed between these particular countries.

Nonetheless, the differences can also be explained by several factors at the individual level. Accordingly, using the data on a large number of covariates, our study provided an answer to the second research question by examining the importance of certain individual characteristics in the perspectives on homosexuality. Consistent with previous research (e.g. Herek, 2002), our results revealed that male pupils and teachers had a more negative perspective on homosexuality than females. When comparing pupils' comfort level towards gay men and lesbians separately, on the other hand, we did not find any difference, whereas other studies do (such as Davies, 2004). With the exception of Turkey, pupils perceived homosexuality more negatively than teachers, which is inconsistent with what has been found in previous studies. For example, Steffens and Wagner (2004) found a linear trend in age, i.e. the younger the individual, the more favourable the attitude towards homosexuality. In addition, results from our analysis showed pupils younger than 13 years old to have a more positive perspective on homosexuality than older pupils, while Poteat et al. (2009) found the reverse. The finding that teachers in the majority of the countries perceived homosexuality more positively than their pupils should not come as a surprise. We hypothesize that, whereas all pupils at a young age are still part of the general population, teachers can be considered as a particular subgroup, aiming to set a good example to their students and hence, having good norms and values. Note that the reversed pattern for Turkey is supported by previous research where Turkish parents, with more conservative values and traditional gender-role beliefs, were also found to be more hostile towards homosexuals than their children (Oksal, 2008). Finally, for both pupils and teachers, the opinion of parents was found to significantly influence their perspectives on homosexuality. This finding conforms to the literature on socialization stating that social norms are adopted via the exposure to particular socializing agents, such as in this case the parents (Van den Akker et al., 2013).

Third, by analysing repeated cross-section data (2013 and 2017), an overall positive change over time in answering patterns of students was observed, yet, reverse patterns in Germany and Poland as compared to Belgium. Moreover, for teachers, we found the Dutch and German teachers to respond more positively in 2017 as compared to 2013.

As we have emphasized, a limitation of our study is that the schools are not randomly selected in the sample. If higher education institutions distributed the surveys solely among the advanced and higher-performing secondary schools, our estimates may potentially be an upper bound of what is actually perceived by students and teachers in each country.

Our article offers several opportunities for future research. First, the emphasis should be on generating representative samples and providing causal evidence through experiments. Second, the present survey ignored the role of some relevant individual level characteristics. Therefore, considering the vast literature on mechanisms explaining attitudes towards homosexuality, the race, religion and socio-economic status of students and teachers, and the educational level of students should be taken into account in future analyses. Finally, by means of administrative data, we believe it would be interesting to explore long-term effects of differential perspectives towards homosexuality on student outcomes such as dropout rates and labour market outcomes (Mazrekaj et al., 2019).

To conclude, our results give rise to strong policy implications. Although we observe a positive trend for some countries between the two waves of the survey, in other countries the climate towards homosexuality remains unchanged or is reversing. Moreover, both the social and political changes with regard to LGBTQ issues in European countries during the last decennia, as discussed in earlier on the article, and the fact that pupils are coming out at a younger age suggest that schools are increasingly facing the topic. Accordingly, both educational policy-makers and teachers need to understand that dealing with homosexuality issues is not just a choice they can make, but is necessary. Hence, if there is a desire for greater parity between homosexuality and heterosexuality then there is more to be done to ensure teachers are well trained and, as a consequence, pupils receive better education about diversity in their secondary education. Accordingly, an in-depth integration of the concept of homosexuality in the educational curricula should be proposed for which, for example, best practices from each of the eight countries could be shared. To ensure all young people have a good experience during their time at school it is essential that their identity is nurtured and that diversity is celebrated. Schools that show young people different types of families and different ways of living increase young people's success and help them to be well prepared for the changing world they will soon be living in as independent, responsible citizens.

Acknowledgements

We are grateful for valuable comments of Fiona Shelton, Lotte Geunis and seminar participants at Leuven, Maastricht, IMT Lucca and Derby. We thank all Homo'poly partners for assistance in collecting the data.

Funding

We acknowledge funding from the European Erasmus+ programme, through the KA2-funding for the project Homo'poly (Grant no. 2016-1-NL01-KA203-022893).

Notes

1. Despite our data originating from 2013 and 2017, we do not make a distinction between these time periods in the text as there are no relevant changes in the legislation of the discussed countries.

2. LGBTQ is an umbrella term for ‘Lesbian, Gay, Bisexual, Transgender and Queering’.
3. Note that, as we do not have information on the school or class a particular student or teacher is attending, we are unable to cluster the standard errors at the level of the school or class. Nevertheless, using robust standard errors and bootstrapped standard errors yields similar significance levels.
4. It should be noted that the measure *Comfortable with homosexuality* combines attitudes towards lesbians and gay men. As research indicates attitudes towards gay men to be often more hostile than towards lesbians, we examine whether student responses across countries differ when comparing attitudes towards lesbian and gay men separately. Our findings indicate no differential answering pattern and main interpretations remain valid.
5. For interpretability of the estimates, we use an OLS regression model for ordered dependent variables. Results for these dependent variables are, however, robust to an ordered logistic specification.
6. This relationship is not driven by taking Belgium as a reference category. Robustness tests indicate similar patterns if other countries are used as a reference.

ORCID iD

Kristof De Witte  <https://orcid.org/0000-0001-8564-8225>

References

- Ahmad S and Bhugra D (2010) Homophobia: An updated review of the literature. *Sexual and Relationship Therapy* 25(4): 447–455.
- Andersen R and Fetner T (2008) Economic inequality and intolerance: Attitudes toward homosexuality in 35 democracies. *American Journal of Political Science* 52(4): 942–958.
- Bakacak AG and Oktem P (2014) Homosexuality in Turkey: Strategies for managing heterosexism. *Journal of Homosexuality* 61(6): 817–846.
- Barron JM, Struckman-Johnson C, Quevillon R and Banka SR (2008) Heterosexual men’s attitudes toward gay men: A hierarchical model including masculinity, openness, and theoretical explanations. *Psychology of Men and Masculinity* 9(3): 154–166.
- Bron J, Loenen S, Haverkamp M and Van Vliet E (2015) *Seksualiteit en seksuele diversiteit in de kerndoelen*. Utrecht: Nationaal Expertisecentrum Leerplanoontwikkeling. Available at: <http://downloads.slo.nl/Repository/Seksualiteit-en-seksuele-diversiteit-in-de-kerndoelen.pdf> (accessed 10 April 2019).
- Budapest Pride (2016) The perception of same-sex marriage in Hungarian society. 9 December. Available at: <https://budapestpride.com/news/the-perception-of-same-sex-marriage-in-hungarian-society> (accessed 10 April 2019).
- Davies M (2004) Correlates of negative attitudes toward gay men: Sexism, male role norms, and male sexuality. *Journal of Sex Research* 41(3): 259–266.
- De Witte K, Holz O and Geunis L (eds) (2018) *Somewhere over the Rainbow*. Münster: Waxmann.
- Donaldson CD, Handren LM and La A. (2017) Applying multilevel modeling to understand individual and cross-cultural variations in attitudes toward homosexual people across 28 European countries. *Journal of Cross-Cultural Psychology* 48(1): 93–112.
- Drägenstein B, Schwarze O, Kapfelsperger C and Aigner P (2018) Homosexuality: The history of gender in Germany. In: De Witte K, Holz O and Geunis L (eds) *Somewhere over the Rainbow*. Münster: Waxmann, pp. 53–76.
- Eeckhout B and Paternotte D (2011) A paradise for LGBT rights? The paradox of Belgium. *Journal of Homosexuality* 58(8): 1058–1084.

- Einarsdóttir A, Hoel H and Lewis D (2015) 'It's nothing personal': Anti-homosexuality in the British workplace. *Sociology* 49(6): 1183–1199.
- Ertürk N and Gürya B (2018) Being different is not easy in Turkey. In: De Witte K, Holz O and Geunis L (eds) *Somewhere over the Rainbow*. Münster: Waxmann, pp. 127–135.
- European Union Agency for Fundamental Rights (2014) *EU LGBT Survey: European Union Lesbian, Gay, Bisexual and Transgender Survey: Main Results*. Luxembourg: European Union Agency for Fundamental Rights. Available at: <http://fra.europa.eu/en/publication/2014/eu-lgbt-survey-european-union-lesbian-gay-bisexual-and-transgender-survey-main>
- European Union Agency for Fundamental Rights (2017) *Fundamental Rights Report 2017*. Luxembourg: European Union Agency for Fundamental Rights. Available at: <https://fra.europa.eu/en/publication/2017/fundamental-rights-report-2017>
- EVS (2016) *European Values Study 2008: Integrated Dataset (EVS 2008)*. GESIS Data Archive, Cologne. ZA4800 Data file Version 4.0.0.
- EVS (2018) *European Values Study 2017: Integrated Dataset (EVS 2017)*. GESIS Data Archive, Cologne. ZA7500 Data file Version 1.0.0.
- FELGTB(Federación Estatal de Lesbianas, Gais, Transexuales y Bisexuales)(2011) Cómo decirselo a tu familia. Available at: www.felgtb.org/temas/jovenes/documentacion/i/136/291/guia-como-decirselo-a-tu-familia (accessed 15 April 2019).
- Gerhards J (2010) Non-discrimination towards homosexuality: The European Union's policy and citizens' attitudes towards homosexuality in 27 European countries. *International Sociology* 25(1): 5–28.
- Górska P, Bilewicz M, Winiewski M and Waszkiewicz A (2017) On old-fashioned versus modern homonegativity distinction: Evidence from Poland. *Journal of Homosexuality* 64(2): 256–272.
- Grossman E (2013) Gendergerechte Bildung und Erziehung in Ungarn. In: *EDucation & GEndEr. Gendergerechte Bildung und Erziehung in ausgewählten Ländern. Historische Aspekte - Aktuelle Trends*. Münster: Waxmann, pp. 93–101.
- Guash O (2011) Social stereotypes and masculine homosexualities: The Spanish case. *Sexualities* 14(5): 526–543.
- Guittar NA and Pals H (2014) Intersecting gender with race and religiosity: Do unique social categories explain attitudes toward homosexuality? *Current Sociology* 62(1): 41–62.
- Halman L and Van Ingen E (2015) Secularization and changing moral views: European trends in church attendance and views on homosexuality, divorce, abortion, and euthanasia. *European Sociological Review* 31(5): 616–627.
- Herek GM (1988) Heterosexuals' attitudes toward and gender differences lesbians and gay men: Correlates and gender differences. *Journal of Sex Research* 25(4): 451–477.
- Herek GM (2002) Gender gaps in public opinion about lesbians and gay men. *Public Opinion Quarterly* 66(1): 40–66.
- Herek GM and Capitano JP (1996) 'Some of my best friends': Intergroup contact, concealable stigma, and heterosexuals' attitudes toward gay men and lesbians. *Personality and Social Psychology Bulletin* 22(4): 412–424.
- Hooghe M and Meeusen C (2013) Is same-sex marriage legislation related to attitudes toward homosexuality? Trends in tolerance of homosexuality in European countries between 2002 and 2010. *Sexuality Research and Social Policy* 10(4): 258–268.
- ILGA-Europe (2018) *Annual Review of the Human Rights Situation of Lesbian, Gay, Bisexual, Trans and Intersex People in Europe 2018*. Available at: www.ilga-europe.org/rainboweurope/2018
- ILGA-Europe (2019) *Annual Review of the Human Rights Situation of Lesbian, Gay, Bisexual, Trans and Intersex People in Europe 2019*. Available at: www.ilga-europe.org/rainboweurope/2019

- Keuzenkamp S and Kuyper L (2013) *Acceptance of Lesbian, Gay, Bisexual and Transgender Individuals in the Netherlands 2013*. The Hague: The Netherlands Institute for Social Research.
- Kong TS (2016) The sexual in Chinese sociology: Homosexuality studies in contemporary China. *The Sociological Review* 64(3): 495–514.
- Kosciw JG, Greytak EA, Bartkiewicz MJ et al. (2011) *The 2011 National School Climate Survey. The Experience of Lesbian, Gay, Bisexual and Transgender Youth in Our Nation's Schools*. New York: GLSEN.
- Mazrekaj D, De Witte K and Cabus S (2019) School and labour market outcomes among children of same-sex households. Working Paper KU Leuven.
- McCormack M (2014) The intersection of youth masculinities, decreasing homophobia and class: An ethnography. *The British Journal of Sociology* 65(1): 130–149.
- Oksa A (2008) Turkish family members' attitudes toward lesbians and gay men. *Sex Roles* 58(7): 514–525.
- Piekarsk G (2014) The social situation of LGBT people in Polish schools and the educational system. In: *Gender and Education from Different Angle*. Zurich and Berlin: LIT Verlag, pp. 204–212.
- Poteat VP, Espelage DL and Koenig BW (2009) Willingness to remain friends and attend school with lesbian and gay peers: Relational expressions of prejudice among heterosexual youth. *Journal Youth Adolescence* 38(7): 952–962.
- Roberts S, Anderson E and Magrath R (2017) Continuity, change and complexity in the performance of masculinity among elite young footballers in England. *The British Journal of Sociology* 68(2): 336–357.
- Robinson KH and Ferfolja T (2001) 'What are we doing this for?' Dealing with lesbian and gay issues in teacher education. *British Journal of Sociology of Education* 22(1): 121–133.
- Slenders S, Sieben I and Verbakel E (2014) Tolerance towards homosexuality in Europe: Population composition, economic affluence, religiosity, same-sex union legislation and HIV rates as explanations for country differences. *International Sociology* 29(4): 348–367.
- Social and Community Planning Research (1983) *British Social Attitudes Survey*. UK Data Service. SN: 1935.
- Soriano Gil MA (2005) *La marginación homosexual en la España de la transición*. Madrid: Egalés.
- Steffens MC and Wagner C (2004) Attitudes toward lesbians, gay men, bisexual women, and bisexual men in Germany. *Journal of Sex Research* 41(2): 137–149.
- Steunpunt Gelijkekansenbeleid. Consortium Universiteit Antwerpen en Universiteit Hasselt (2011) *Zzip2 - Onderzoek naar de levenskwaliteit van Vlaamse Holebi's*. Antwerpen: Lithos.
- Stonewall (2014) *The Teacher's Report*. Available at: www.stonewall.org.uk/resources/teachers-report-2014-0 (accessed 25 April 2019).
- Štulhofer A and Rima I (2009) Determinants of homonegativity in Europe. *Journal of Sex Research* 46(1): 24–32.
- Szalacha LA (2004) Safer sexual diversity climates: Lessons learned from an evaluation of Massachusetts Safe Schools Program for Gay and Lesbian Students. *American Journal of Education* 110: 58–88.
- TNS Opinion & Social (2015) *Special Eurobarometer 437 'Discrimination in the EU in 2015' – Summary*. Available at: <http://ec.europa.eu/COMMFrontOffice/publicopinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2077>
- Van den Akker H, Van der Ploeg R and Scheepers P (2013) Disapproval of homosexuality: Comparative research on individual and national determinants of disapproval of homosexuality in 20 European countries. *International Journal of Public Opinion Research* 25(1): 64–86.

- Van der Bracht K and Van de Putte B (2014) Homonegativity among first and second generation migrants in Europe: The interplay of time trends, origin, destination and religion. *Social Science Research* 48: 108–120.
- Van Vliet L (2013) Homojongeren: Acceptatie kan beter. 16 May. Available at: <https://eenvandaag.avrotros.nl/panels/jijvandaag/item/homojongeren-acceptatie-kan-beter/> (accessed 10 April 2019).
- Vlaams Ministerie van Onderwijs en Vorming(2010) *VOET @ 2010. Nieuwe vakoverschrijdende eindtermen voor het secundair onderwijs*. Available at: www.vlaanderen.be/publicaties/voet-2010-nieuwe-vakoverschrijdende-eindtermen-voor-het-secundair-onderwijs (accessed 15 April 2019).
- Whitley BE (2001) Gender-role variables and attitudes toward homosexuality. *Sex Roles* 11/12: 691–721.
- Whitley BE Jr (2009) Religiosity and attitudes toward lesbians and gay men: A meta-analysis. *International Journal for the Psychology of Religion* 19(1): 21–38.
- Winkler JD, Kanouse DE and War JE (1982) Controlling for acquiescence response set in scale development. *Journal of Applied Psychology* 67(5): 555–561.
- Worthen MGF (2012) Understanding college student attitudes toward LGBT individuals. *Sociological Focus* 45(4): 285–305.

Author biographies

Kristof De Witte is a professor at the Faculty of Economics and Business at KU Leuven, Belgium, and he holds the chair in ‘Effectiveness and Efficiency of Educational Innovations’ at United Nations University (UNU-MERIT) at Maastricht University, the Netherlands. Kristof De Witte is further a Fellow member of the CESifo Network, and of the Finnish VATT Institute for Economic Research. At KU Leuven he is director of the research group ‘Leuven Economics of Education Research’. His research interests comprise education economics, performance evaluation and political economy. He has published his work in many leading academic journals including *The Economic Journal*, *Journal of Urban Economics*, *European Journal of Operational Research* and *Economics of Education Review*.

Kaat Iterbeke is a PhD student at the Faculty of Economics and Business at KU Leuven, Belgium in the research group ‘Leuven Economics of Education Research’. She obtained a Master’s in General Economics at KU Leuven. Her research interests focus on education economics.

Oliver Holz is an associate professor at the Faculty of Economics and Business at KU Leuven, Campus Brussels (Specific Teacher Training). He is a member of the research group on Educational Research and Development. He has a Master’s in Educational Sciences, Psychology and Physical Education (Chemnitz, Germany), and a PhD in comparative education. Oliver Holz is a participant in and coordinator of different European projects. He has published his work in different publications and different languages.

Résumé

Cet article présente la première analyse comparative à grande échelle des points de vue des élèves et des enseignants sur l’homosexualité, en utilisant deux vagues (2013 et 2017) de données auto-recueillies à partir de questionnaires délivrés dans huit pays européens : la Belgique, les Pays-Bas, l’Allemagne, le Royaume-Uni, l’Espagne, la Pologne, la Hongrie et la Turquie. À l’aide de ces données uniques, nous étudions dans quelle mesure des différences existent d’un pays à l’autre, quels mécanismes expliquent ces différences, et comment elles évoluent dans le temps. Nos

résultats font apparaître des différences significatives entre les pays. En outre, bien qu'on puisse observer une tendance positive entre la première et la deuxième vague de l'enquête, dans certains pays le climat général concernant l'homosexualité témoigne d'un renversement de tendance.

Mots-clés

Étude comparative, études secondaires, homosexualité, point de vue des élèves, point de vue des enseignants

Resumen

Este artículo ofrece el primer análisis comparativo a gran escala de las perspectivas de los alumnos y profesores sobre la homosexualidad utilizando dos oleadas (2013 y 2017) de datos auto-cumplimentados a través de cuestionarios enviados en ocho países europeos: Bélgica, los Países Bajos, Alemania, Reino Unido, España, Polonia, Hungría y Turquía. Utilizando estos datos únicos, examinamos hasta qué punto prevalecen las diferencias entre los países, qué mecanismos explican estas diferencias y cómo cambian las diferencias con el tiempo. Nuestros resultados indican diferencias significativas entre países. Además, aunque observamos una tendencia positiva entre las dos oleadas de la encuesta, en algunos países el clima general hacia la homosexualidad se está revirtiendo.

Palabras clave

Educación secundaria, estudio comparativo, homosexualidad, perspectiva del alumno, perspectiva del profesor

Appendices

Appendix I: Descriptive statistics for the 2013 wave compared to 2017

Table AI. Descriptive statistics of pupil-related variables.

		2013	2017
Background characteristics – N (%)			
Country	Belgium	525 (23.02)	449 (12.49)
	Germany	522 (22.88)	557 (15.50)
	Hungary	115 (5.04)	254 (7.07)
	Netherlands	607 (26.61)	983 (27.35)
	Poland	149 (6.53)	163 (4.54)
	Spain	60 (2.63)	310 (8.63)
	Turkey	95 (4.16)	183 (5.09)
	United Kingdom	208 (9.12)	695 (19.3)
	Gender	Male (1)	1220 (53.70)
	Female (0)	1052 (46.30)	1965 (54.67)
Age	13–14 years	1545 (72.20)	1427 (39.86)
	15–16 years	595 (27.80)	1026 (28.66)
Location	Countryside	1016 (46.50)	190 (5.34)
	City	1169 (53.50)	3371 (94.66)
Questions (score) – Mean (SD)			
Reliable knowledge sex education at school (1–6)		3.61 (1.639)	3.35 (1.674)
Knowledge different relations boys and girls (1–6)		4.05 (1.403)	4.193 (1.484)

Table AII. Descriptive statistics of teacher-related variables.

		2013	2017
Background characteristics – N (%)			
Country	Belgium	37 (22.56)	170 (9.76)
	Germany	47 (28.66)	309 (17.74)
	Netherlands	80 (48.78)	137 (7.86)
Gender	Male (1)	98 (60.87)	508 (29.16)
	Female (0)	63 (39.13)	1234 (70.84)
Age	< 30 years	29 (18.01)	271 (15.93)
	30–39 years	28 (17.39)	525 (30.86)
	40–49 years	48 (29.81)	509 (29.92)
	> 50 years	56 (34.78)	396 (23.28)
Location	Countryside	57 (34.97)	149 (8.63)
	City	106 (65.03)	1578 (91.37)
Education	PhD or Postgraduate	5 (3.11)	68 (4.10)
	Master	56 (34.78)	661 (39.82)
	Bachelor	8 (4.97)	882 (53.13)
	Higher education	88 (54.66)	/
	Secondary education	4 (2.48)	49 (2.95)
Questions (score) – Mean (SD)			
Pupil outing problematic (1–6)		2.994 (1.554)	2.151 (1.427)
Importance gender issues in school (1–6)		3.372 (1.316)	3.382 (1.625)

Appendix II.A: Pupil level – descriptive statistics per country

Table AIII. Descriptive statistics of all pupil-related variables per country.

	Belgium	Germany	Hungary	Netherlands	Poland	Spain	Turkey	United Kingdom
Background characteristics – N (%)								
Gender								
Male (1)	134 (29.84)	275 (49.37)	117 (46.06)	440 (44.76)	84 (51.53)	162 (52.26)	67 (36.61)	350 (50.36)
Female (0)	315 (70.16)	282 (50.63)	137 (53.94)	453 (55.24)	79 (48.47)	148 (47.74)	116 (63.39)	345 (49.64)
Age								
< 13 years	61 (13.59)	11 (1.99)	14 (5.58)	157 (15.99)	8 (4.91)	14 (4.52)	4 (2.19)	353 (51.31)
13–14 years	156 (34.74)	217 (39.17)	194 (77.29)	355 (36.15)	37 (22.70)	179 (57.74)	10 (5.46)	279 (40.55)
15–16 years	121 (26.95)	287 (51.81)	28 (11.16)	293 (29.84)	114 (69.94)	86 (27.74)	47 (25.68)	50 (7.27)
> 16 years	111 (24.72)	39 (7.04)	15 (5.98)	177 (18.02)	4 (2.45)	31 (10.00)	122 (66.67)	6 (0.87)
Sexuality								
Asexual	3 (0.67)	18 (3.24)	1 (0.40)	3 (0.31)	2 (1.23)	2 (0.65)	6 (3.33)	25 (3.65)
Bisexual	12 (2.68)	37 (6.67)	6 (2.41)	30 (3.05)	18 (11.04)	12 (3.91)	26 (14.44)	44 (6.43)
Don't know	40 (8.93)	56 (10.09)	29 (11.65)	122 (12.41)	10 (6.13)	24 (7.82)	16 (8.89)	103 (15.06)
Heterosexual	383 (85.49)	431 (77.66)	212 (85.14)	818 (83.21)	128 (78.53)	265 (86.32)	128 (71.11)	500 (73.10)
Homosexual	10 (2.23)	13 (2.34)	1 (0.40)	10 (1.02)	5 (3.07)	4 (1.30)	4 (2.22)	12 (1.75)
Location								
Countryside	50 (11.21)	24 (4.35)	25 (10.00)	64 (6.54)	9 (5.63)	7 (2.28)	5 (2.73)	6 (0.88)
Village	358 (80.27)	279 (50.54)	50 (20.00)	460 (46.99)	33 (20.63)	113 (36.81)	7 (3.83)	58 (8.48)
City	38 (8.52)	249 (45.11)	175 (70.00)	455 (46.48)	118 (73.75)	187 (60.91)	171 (93.44)	620 (90.64)
Questions (score) – Mean (SD)								
Neutral question (1–6)	5.602 (0.963)	5.676 (1.053)	5.145 (1.591)	5.7 (0.898)	3.294 (2.268)	5.603 (1.143)	5.674 (1.045)	5.085 (1.537)
Knowledge about sex education at school (1–6)	4.121 (1.497)	3.262 (1.419)	2.38 (1.423)	3.188 (1.583)	3.43 (1.96)	2.771 (1.65)	1.653 (1.286)	4.163 (1.533)
Knowledge different relations boys and girls (1–6)	4 (1.388)	4.915 (1.287)	4.173 (1.479)	3.949 (1.379)	3.437 (1.956)	3.974 (1.529)	4.164 (1.429)	4.375 (1.459)
Equality of homosexuals (1–6)	5.149 (1.149)	5.383 (1.049)	4.094 (1.575)	5.486 (0.935)	3.772 (1.759)	5.317 (1.173)	4.623 (1.68)	4.95 (1.313)
Comfortable with homosexuality (1–6)	4.814 (1.43)	5.177 (1.194)	3.352 (1.675)	5.21 (1.159)	3.672 (1.755)	5.061 (1.375)	4.486 (1.754)	4.912 (1.406)
Fall out if friend were gay (1–6)	1.815 (1.34)	1.441 (1.112)	2.152 (1.558)	1.715 (1.372)	3.671 (2.213)	2.092 (1.85)	1.563 (1.307)	1.912 (1.406)

Appendix II.B: Teacher level – descriptive statistics per country
Table AIV. Descriptive statistics of all teacher-related variables per country.

	Belgium	Germany	Hungary	Netherlands	Poland	Spain	Turkey	United Kingdom
Background characteristics – N (%)								
Gender								
Male (1)	40 (23.53)	93 (30.10)	12 (20.34)	70 (51.09)	13 (13.27)	235 (34.01)	27 (13.85)	18 (21.69)
Female (0)	130 (76.47)	216 (69.90)	47 (79.66)	67 (48.91)	85 (86.73)	456 (65.99)	168 (86.15)	65 (78.31)
Age								
< 30 years	16 (9.64)	55 (18.21)	7 (12.07)	36 (29.27)	35 (36.84)	33 (4.81)	66 (34.55)	23 (28.75)
30–39 years	52 (31.33)	102 (33.77)	15 (25.86)	23 (18.70)	18 (18.95)	202 (29.45)	77 (40.31)	36 (45.00)
40–49 years	52 (31.33)	78 (25.83)	20 (34.48)	21 (17.07)	23 (24.21)	260 (37.90)	41 (21.47)	14 (17.50)
> 50 years	46 (27.71)	67 (22.19)	16 (27.59)	43 (34.96)	19 (20.00)	191 (27.84)	7 (3.66)	7 (8.75)
Sexuality								
Asexual	4 (2.44)	9 (3.00)	2 (3.57)	2 (1.65)	2 (2.22)	11 (1.66)	17 (10.30)	1 (1.30)
Bisexual	0 (0.00)	1 (0.33)	2 (3.57)	3 (2.48)	2 (2.22)	5 (0.75)	2 (1.21)	1 (1.30)
Don't know	0 (0.00)	1 (0.33)	0 (0.00)	2 (1.65)	0 (0.00)	0 (0.00)	7 (4.24)	0 (0.00)
Heterosexual	154 (93.90)	251 (83.67)	52 (92.86)	105 (86.78)	84 (93.33)	611 (92.02)	136 (82.42)	68 (88.31)
Homosexual	6 (3.66)	38 (12.67)	0 (0.00)	9 (7.44)	2 (2.22)	37 (5.57)	3 (1.82)	7 (9.09)
Country-side	6 (3.53)	38 (12.38)	12 (21.05)	7 (5.35)	0 (0.00)	83 (12.08)	3 (1.54)	0 (0.00)
Village	75 (44.12)	26 (8.47)	3 (5.26)	15 (11.54)	33 (33.67)	222 (32.31)	13 (6.67)	7 (8.43)
City	89 (52.53)	243 (79.15)	42 (73.68)	108 (83.08)	65 (66.33)	382 (55.60)	179 (91.79)	76 (91.57)
Education								
PhD (doctoral)	2 (1.21)	6 (2.02)	5 (9.26)	5 (4.17)	5 (5.43)	26 (3.89)	19 (10.22)	0 (0.00)
Master degree (4 or 5 years)	77 (46.67)	274 (92.26)	44 (81.48)	25 (20.83)	79 (85.87)	102 (15.27)	42 (22.58)	18 (23.08)
Bachelor degree (3 years)	80 (48.48)	9 (3.03)	5 (9.26)	66 (55.00)	8 (8.70)	535 (80.09)	123 (66.13)	56 (71.79)
Secondary education	6 (3.64)	8 (2.69)	0 (0.00)	24 (20.00)	0 (0.00)	5 (0.75)	2 (1.08)	4 (5.13)
General education	64 (38.32)	265 (88.33)	33 (58.93)	118 (95.93)	47 (51.09)	389 (56.87)	152 (79.58)	61 (76.25)
Vocational education	17 (10.18)	29 (9.67)	15 (26.79)	4 (3.25)	4 (4.35)	10 (1.46)	23 (12.04)	0 (0.00)
Mixed	86 (51.50)	6 (2.00)	8 (14.29)	1 (0.81)	41 (44.57)	285 (41.67)	16 (8.38)	19 (23.75)
Questions (score) – Mean (SD)								
Neutral question (1–6)	5.78 (0.734)	5.781 (0.787)	4.824 (1.633)	5.692 (0.86)	5.044 (1.582)	5.76 (0.858)	5.018 (1.588)	5.754 (0.673)
Pupil outing problematic (1–6)	2.064 (1.249)	2.708 (1.311)	3.373 (1.661)	2.077 (1.26)	2.275 (1.687)	1.564 (1.056)	3.071 (1.838)	2.194 (1.083)
Importance gender issues in school (1–6)	3.974 (1.486)	3.629 (1.45)	3.28 (1.565)	3.573 (1.486)	3.955 (1.58)	3.114 (1.703)	2.851 (1.538)	3.819 (1.485)
Equality of homosexuals (1–6)	5.603 (0.658)	5.547 (0.853)	4.518 (1.396)	5.629 (0.86)	3.888 (1.447)	5.575 (0.867)	4.088 (1.462)	5.602 (0.789)
Comfortable with homosexuality (1–6)	5.318 (1.013)	5.578 (0.83)	4.474 (1.452)	5.476 (0.832)	4.446 (1.476)	5.645 (0.84)	3.651 (1.681)	5.638 (0.666)
Fall out if friend were gay (1–6)	1.24 (0.893)	1.133 (0.689)	1.412 (1.152)	1.606 (1.567)	1.5 (1.227)	1.235 (0.994)	1.934 (1.444)	1.147 (0.697)

Appendix III: Detailed description of questions

Table AV. Detailed description of questions.

Variables	Questions/statements included in the variable	Cronbach's α
Equality of homosexuals	Homosexuality is natural.	0.91
	People should perceive homosexuality as equal to heterosexuality.	
	Gays and lesbians should have the same rights as heterosexuals.	
	Gays and lesbians should have the right to get married.	
	Gays and lesbians should have the right to adopt.	
Comfortable with homosexuality	<i>For pupils:</i>	0.91
	I don't have any problem with two boys holding hands in public.	
	I don't have any problem at all if two boys are kissing on the lips in public.	
	I don't have any problem with two girls holding hands in public.	
	I don't have any problem at all if two girls are kissing on the lips in public.	0.86
	It wouldn't be any problem for me if my best friend came out as gay.	
	<i>For teachers:</i>	
I do not have any problem if two women or men hold hands in public.	/	
I do not have any problem at all if two women or men are kissing each other in public.		
It wouldn't be any problem for me if my best friend came out as gay.		
Knowledge	<i>For teachers and pupils combined:</i>	/
	It wouldn't be any problem for me if my best friend is coming-out as gay.	
	In the Second World War homosexuals were persecuted and gassed in concentration camps.	
	In history homosexuals have always been discriminated against. Scientists always agreed that homosexuality was unnatural.	
	Even today, in some countries of the world, homosexual acts are punished with the death penalty.	
	In nature, there are many examples of homosexuality among animals.	
	Among the 'Old Greeks' homosexuality was very common among men.	
The suicide rate of homosexual girls and boys is about 5 times higher than of heterosexual girls and boys.		
Bullying	Have any of your friends been bullied in school?	0.66
	Have you been bullied in school?	
	Have you been bullied on social media (Facebook, WhatsApp, ...)?	
	Is the word 'gay' or similar used to bully in your school?	

Appendix IV: Subgroup analysis

Table AVI. Pupil–teacher differences per country.

Dependent variable		Equality of homosexuals	Comfortable with homosexuals	Fall out if friend were gay
Level of analysis: Pupil & teacher				
Belgium	Pupil	−0.369*** (0.105)	−0.408*** (0.143)	0.509*** (0.137)
	Controls	Yes	Yes	Yes
	Observations	529	529	529
Germany	Pupil	−0.0447 (0.0802)	−0.304*** (0.0999)	0.285*** (0.0839)
	Controls	Yes	Yes	Yes
	Observations	780	780	780
	Chi-square test	7.22	0.38	2.22
	p-value	0.0072	0.5392	0.1360
Hungary	Pupil	−0.228 (0.253)	−0.897*** (0.295)	0.483* (0.253)
	Controls	Yes	Yes	Yes
	Observations	273	273	273
	Chi-square test	0.32	3.18	0.01
	p-value	0.5732	0.0745	0.9066
Netherlands	Pupil	−0.210** (0.0915)	−0.399*** (0.117)	0.110 (0.147)
	Controls	Yes	Yes	Yes
	Observations	987	987	987
	Chi-square test	1.46	0.00	3.43
	p-value	0.2263	0.9553	0.0640
Poland	Pupil	0.102 (0.262)	−1.016*** (0.283)	2.107*** (0.311)
	Controls	Yes	Yes	Yes
	Observations	237	237	237
	Chi-square test	3.76	3.81	25.39
	p-value	0.0526	0.0510	0.0000
Spain	Pupil	−0.0785 (0.0664)	−0.489*** (0.0754)	0.835*** (0.104)
	Controls	Yes	Yes	Yes
	Observations	885	885	885
	Chi-square test	6.10	0.24	3.24
	p-value	0.0135	0.6266	0.0718
Turkey	Pupil	0.375** (0.181)	0.396* (0.214)	−0.276* (0.164)
	Controls	Yes	Yes	Yes
	Observations	287	287	287
	Chi-square test	13.61	10.51	14.94
	p-value	0.0002	0.0012	0.0001

Table AVI. (Continued)

Dependent variable		<i>Equality of homosexuals</i>	<i>Comfortable with homosexuals</i>	<i>Fall out if friend were gay</i>
Level of analysis: Pupil & teacher				
<i>United Kingdom</i>				
	Pupil	-0.189 (0.136)	-0.261* (0.156)	0.631*** (0.208)
	Controls	Yes	Yes	Yes
	Observations	608	608	608
	Chi-square test	1.77	0.80	0.46
	p-value	0.1829	0.3701	0.4970

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The chi-square test is used to examine whether there are significant differences between the pupil coefficients across countries. Reference category for chi-square test: Belgium. Controls: gender, living place, sexuality, neutral question.

Appendix V: Robustness check

Table AVII. Ceteris paribus analysis for individuals who disagree or strongly disagree (i.e. a score ≤ 2).

Dependent variable	<i>Equality of homosexuals</i>			<i>Comfortable with homosexuality</i>	
	Pupil	Teacher	Pupil & teacher	Pupil	Teacher
Germany	0.167 (0.193)	-3.582*** (1.113)	0.215 (0.141)	-0.0485 (0.144)	-0.590 (0.504)
Hungary	0.208 (0.160)	-2.302** (0.934)	0.0760 (0.128)	0.101 (0.109)	0.0414 (0.494)
Netherlands	-0.140 (0.182)	-3.380*** (1.135)	-0.0748 (0.144)	-0.0545 (0.119)	
Poland	0.146 (0.175)	-2.803** (1.086)	0.102 (0.129)	0.229* (0.123)	-0.0637 (0.501)
Spain	-0.0475 (0.208)	-2.851** (1.135)	0.0604 (0.145)	0.239* (0.131)	0.0913 (0.465)
Turkey	0.400** (0.193)	-2.807** (1.081)	0.158 (0.135)	0.0864 (0.138)	-0.0545 (0.482)
UK	0.0911 (0.189)	-1.790 (1.244)	0.0369 (0.150)	0.0686 (0.126)	0.729 (0.767)
Other control	Yes	Yes	Yes	Yes	Yes
Observations	148	92	214	174	113
Adjusted R^2	0.195	0.271	0.152	0.473	0.253

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. *Equality* and *Comfortable* ≤ 3 for teachers due to insufficient observations for ≤ 2 . Variables controlled for at teacher level: level of education, type of school, perception on parents' opinion being gay, set of questions (neutral question, general atmosphere homosexuals improved, pupil outing problematic, importance gender issues in school, teach girls and boys differently). Variables controlled for at pupil level: perception on parents' opinion being gay, perception on teacher's behaviour, set of questions (neutral question, discuss girl topics with mother, discuss boy topics with father, reliable knowledge sex education at school, difference in role and motives girls and boys, trust between partners is important, males have limited knowledge on female partner). Variables controlled at pupil and teacher level: neutral question. Reference categories: Belgium.

Table AVIII. Ceteris paribus analysis for individuals who agree or strongly agree (ie a score ≥ 5).

Dependent variable	Equality of homosexuals			Comfortable with homosexuality	
	Pupil	Teacher	Pupil & teacher	Pupil	Teacher
Germany	0.0247 (0.0253)	0.00101 (0.0365)	0.0184 (0.0193)	0.0234 (0.0279)	0.0837** (0.0359)
Hungary	-0.0841** (0.0394)	-0.0538 (0.0673)	-0.0950*** (0.0319)	-0.208*** (0.0471)	0.0587 (0.0677)
Netherlands	0.0108 (0.0232)	0.0318 (0.0432)	0.0650*** (0.0186)	-0.0655** (0.0258)	0.0428 (0.0429)
Poland	-0.138*** (0.0520)	-0.304*** (0.0660)	-0.147*** (0.0379)	-0.163*** (0.0565)	-0.0507 (0.0542)
Spain	0.0456 (0.0293)	0.00989 (0.0340)	0.0504*** (0.0191)	0.0338 (0.0327)	0.117*** (0.0335)
Turkey	0.0630 (0.0436)	-0.122** (0.0585)	-0.0104 (0.0309)	-0.0501 (0.0465)	-0.0850 (0.0563)
UK	-0.0344 (0.0285)	0.0666 (0.0484)	0.0144 (0.0226)	0.0328 (0.0313)	0.0971** (0.0458)
Other control	Yes	Yes	Yes	Yes	Yes
Observations	2131	1094	3417	1913	1098
Adjusted R^2	0.165	0.160	0.101	0.177	0.207

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Variables controlled for at teacher level: level of education, type of school, perception on parents' opinion being gay, set of questions (neutral question, general atmosphere homosexuals improved, pupil outing problematic, importance gender issues in school, teach girls and boys differently). Variables controlled for at pupil level: perception on parents' opinion being gay, perception on teacher's behaviour, set of questions (neutral question, discuss girl topics with mother, discuss boy topics with father, reliable knowledge sex education at school, difference in role and motives girls and boys, trust between partners is important, males have limited knowledge on female partner). Variables controlled at pupil and teacher level: neutral question. Reference categories: Belgium.

1b. I discuss boys' topics with my mother (eg sports, politics, daily news...)

I strongly disagree					I strongly agree
1	2	3	4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2a. I discuss girls' topics with my father (eg discussion about clothes, children, make-up...)

I strongly disagree					I strongly agree
1	2	3	4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. I discuss boys' topics with my father (eg sports, politics, daily news...)

I strongly disagree					I strongly agree
1	2	3	4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. How many close female friends do you have?

5. How many close male friends do you have?

6. How many older brothers do you have?

7. How many older sisters do you have?

8. How many younger brothers do you have?

9. How many younger sisters do you have?

10. Did you have a boyfriend or girlfriend before in a relationship?

11. How many 'romantic' relationships did you have before?

12. Do you believe that married couples should stay together for their entire life?

3. Sex

Please give your opinion, by rating the following items. Your rating should be on a 6-point scale, ranging from **1 = not at all true for me (disagree)** to **6 = very true for me (agree)**.

7. Trust between partners is important.

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Male adolescents have limited knowledge of their female peers.

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Female adolescents have limited knowledge of their male peers.

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Homosexuality – What do you know about homosexuality?

What do you think: How many percent of the population of your country is gay or lesbian?

- Less than 5 percent
- Between 5 and 10 percent
- Between 11 and 15 percent
- More than 15 percent
- Do not know

Please give your answer by marking ‘yes’, ‘no’ or ‘I don’t know’.

3. In the Second World War homosexuals were persecuted and gassed in concentration camps.

- yes no I don’t know

4. In history Homosexuals have always been socially discriminated.

- yes no I don’t know

5. Scientists always agreed that homosexuality was unnatural.

- yes no I don’t know

6. Even today, in some countries of the world, homosexual acts are punished with the death penalty.

- yes no I don’t know

18. Have you been bullied on social media (Facebook, WhatsApp, ...)?

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Is the word 'gay' or similar used to bully in your school?

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. Is the word 'gay' or similar used as an insult?

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. I think it is important to learn at school about homosexuality.

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. What resources would be useful?

Thank you very much for cooperation!

Teacher questionnaire

Dear colleague,

As part of a large project in 8 different European countries, we would like to ask you some questions. The answers to questions should be based on your own experiences and attitudes. There are no right or wrong answers. Answers are anonymous.

Thank you for your cooperation and help on this project!

1. Personal data. Please fill in the appropriate response.

You are a:

- Male Female

My country

- Belgium
- Poland
- Germany
- Spain
- Hungary
- Netherland
- United Kingdom

Where do you teach?

- in the country side
- in a village
- in a town or city

Size of the school

How many students are there in your school?

Type of the school

- general education
- vocational education mixed

How old are you?

- less than 30 years old
- 40–49 years old
- 30–39 years old
- 50 years or older

How many years have you been teaching?

- 1–5
- 11–20
- 6–10
- more than 20

Number of teaching hours you have per week:

- 1–5
- 10–15
- more than 20
- 5–10
- 15–20

Which subject do you teach? (multiple ticks possible)

- Economics
- Languages
- History
- Biology
- Chemistry
- Art education
- Music
- Math
- Foreign Languages
- Physical Education
- Physics
- Geography
- ICT
- Others

Do you have children yourself?

- Yes
- No

Clarification of your answer...

4. Our school attaches importance to gender issues. Can you also clarify your answer?

I strongly disagree					I strongly agree
1	2	3	4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Clarification of your answer...

5. I teach boys differently to girls. Can you also clarify your answer?

I strongly disagree					I strongly agree
1	2	3	4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Clarification of your answer...

6. I would prefer to teach only boys or girls (homogeneous class groups). Can you also clarify your answer?

I strongly disagree					I strongly agree
1	2	3	4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Clarification of your answer...

7. In daily life (outside school), I have a different attitude towards boys and girls. Can you also clarify your answer?

I strongly disagree					I strongly agree
1	2	3	4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Clarification of your answer...

12. ...one of my colleagues is gay/lesbian I would try to convince my colleagues at school that this is not an issue.

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. ...one of my colleagues is gay/lesbian I think a gay/lesbian colleague would make things difficult to handle at school.

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. In my opinion, the general atmosphere (eg newspapers, law, public opinion) towards homosexuality is improving.

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. In my opinion, the law has been improving towards homosexuality during the last 10 years.

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Are you checking how your students are behaving towards each other on social media (Facebook, WhatsApp...)?

I strongly disagree						I strongly agree
1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Open questions:

What resources would be useful in your school to teach about homosexuality?

Do you think that a curriculum on homosexuality would be useful in your school?

How do you react when you find out that a student in your class is bullied because of his/her homosexual characteristics?

Are there discussions among the teachers about homosexuality in the school?

Are there initiatives in your school to increase the awareness of teachers towards the issue of homosexuality?

Thank you for your cooperation!