

# Did the Egalitarian Reforms of the Swedish Educational System Equalise Levels of Democratic Citizenship?

Mikael Persson\* and Henrik Oscarsson

In the mid-1990s an extensive reform of the Swedish educational system was initiated in order to create a 'school for everyone' intended to function like a 'social equaliser'. The new unified gymnasium initiated longer educational programmes with an extended curriculum of social science courses. This article examines whether the well documented gap in levels of democratic citizenship indicators between students in theoretical and vocational gymnasium study programmes persisted after this massive reform. Given the vast amount of empirical research that has shown that education promotes democratic citizenship, the reform could be expected to result in a decreased civic gap. However, contrary to the conventional wisdom in research on the impact of education, little evidence is found linking the initiation of longer educational programmes with more social science courses to an increase in the levels of the examined dimensions of democratic citizenship. The egalitarian reform of the Swedish gymnasium, which provided more civic education, did not produce hypothesised positive effects on any of the dimensions under study (i.e., political participation, political knowledge and political attentiveness). Rather, results support the pre-adult socialisation models since the gap between citizens from theoretical and vocational gymnasium study programmes remained after the unification of the educational system.

## Introduction

What are the prospects of reducing systematic inequalities in levels of democratic citizenship by increasing the amount of social science courses and equalising the length of education? There are numerous studies demonstrating that education positively affects democratic citizenship. However, the question concerning how government policies affect political behaviour and political knowledge has been widely neglected (cf. Mettler & Soss 2004). In this article, we seek to shed light on this relationship. For that reason, we examine to what extent public policies might reduce systematic inequalities in levels of political participation, knowledge and attentiveness.

In Sweden systematic differences related to type of education, first and foremost between theoretical and vocational gymnasium study pro-

\* Mikael Persson, Department of Political Science, Box 711, 405 30 Gothenburg, Sweden.  
E-mail: mikael.persson@pol.gu.se

grammes, have been well known for several decades. The aim of this study is to examine whether the gap in levels of core dimensions of democratic citizenship persisted after the massive egalitarian reform of the Swedish educational system that took place in the 1990s. More specifically, did the reform have any equalising long-term effect on the gap between students from theoretical and vocational study programmes concerning levels of political participation, knowledge and attentiveness?

The reform of the Swedish gymnasium in the mid-1990s represents a unique opportunity to parse out various effects of education on democratic citizenship among young citizens. The main changes of the reform were the extended amount of social science courses and the extension of the length of vocational education programmes. By comparing young citizens' scores on the indicators of democratic citizenship before and after the reform, we estimate the effect of raised educational levels on democratic citizenship. In addition, we investigate the potential of using school reforms in order to balance systematic inequalities in levels of democratic citizenship.

The educational system is often considered to be one of the primary arenas in which young citizens' political attitudes, knowledge and behaviour are shaped. Consequently, great expectations are ascribed by theorists to the prospect of strengthening individual's political knowledge, behaviour and attitudes by a well functioning educational system (e.g., Galston 2001; Crittenden 2007; Gutman 1999; Putnam 2000). Furthermore, and most importantly, education is seen as 'the prime factor in most analyses of political activity' (Verba et al. 1995, 433). However, the theoretical understanding of the relationship between education and democratic citizenship is underdeveloped. Orit Ichilov (2003, 418) points out that 'the causal connection between various processes of formal education and democratic citizenship is pretty much an undeciphered "black box" '. In this article we aim to shed some light in this black box by disentangling the impact of type of education in relation to the length and content of education.

In most studies of the relationship between education and democratic citizenship it is assumed that the *length of education* is an important determinant of various dimensions of democratic citizenship. Moreover, civic education research calls attention to the effects of curriculum (i.e., the *content of education*). While educational *length* and *content* are common explanatory factors in studies of educational effects, there are also other potential dimensions of education that may have an impact on democratic citizenship. In this article, we will underscore the important distinction made by Tom Smith (1995, 216) between *educational content* (i.e., the actual courses taken), on the one hand, and the *type of education*, on the other.

The reform of the Swedish educational system provides a case in which it is actually possible to examine the effects of these two factors that so often are confounding. In Sweden, the most striking difference between various

types of education is the overall aim of the study programme – most importantly whether it is theoretical or vocational.<sup>1</sup> Since the dimensions of education (length, content and type) often coincide as confounding factors, it has hitherto been almost impossible – yet an important endeavour – to isolate the effects from one another. However, in this case, we have the opportunity to isolate the impact of type of education from length and content. In order to do so, we will investigate whether the unequal levels of democratic citizenship between students with different education backgrounds persisted when the length of study programmes and the amount of social science courses were changed. More precisely, we investigate how the gap in levels of the core dimensions of democratic citizenship<sup>2</sup> (i.e., political participation, political knowledge and political attentiveness) between young citizens' with different types of education were affected by the reform of the Swedish gymnasium in the mid-1990s.

## Theory

Previous research ascribes great expectations to the prospect of strengthening individual's political knowledge, behaviour and attitudes by civic education. Drawing on data from the 1980s, Westholm et al. (1990) concluded that there was a gap between Swedish students on vocational and theoretical gymnasium programmes concerning their levels of political knowledge. However, their results indicated that a *social studies curriculum* had a positive effect on political literacy. Consequently, they argued that '[the gap] is by no means a necessary outcome. . . . Had all students been exposed to the same amount of training, we might well have seen a narrowing of the gap between theoretical and vocational programmes' (Westholm et al. 1990, 200). This prediction represents the most common idea about how education affects democratic citizenship – what we here refer to as the '*absolute education effects model*'. We will test this model along with two other models – *the sorting model* and *the pre-adult socialisation model* – which will be presented in the next sections.

### *The Absolute Education Effects Model*

Primarily, we present arguments that provide reasons to expect that the reform will decrease the gap in levels of democratic citizenship between students who went to vocational and theoretical gymnasium study programmes. According to what we here refer to as 'the absolute education effects model', education is supposed to improve all core dimensions of democratic citizenship. The relationship between education and democratic citizenship is most often supposed to be explained through a cognitive

pathway – that is, what students learn in school has positive effects on their behaviour, knowledge and attitudes as a consequence of the fact that education improves cognitive skills.

Drawing on previous research, we have reason to expect a general positive relationship between education and the core dimensions of democratic citizenship: *political knowledge* (e.g., Niemi & Junn 1998; Delli Carpini & Keeter 1996; Finkel 2003; Galston 2001; Mcallister 1998; Milner 2002; Milligan et al. 2004), *political participation* (e.g., Dee 2004; Finkel 2003; Print 2007; Niemi & Junn 1998; Galston 2001; Nie & Hillygus 2001; Hillygus 2005; Verba et al. 1995) and *political attentiveness* (e.g., Ekman 2007; Denver & Hands 1990). Drawing on these studies, we expect that the gap between students in theoretical and vocational programmes should decrease after the reform due to the extended length of vocational educations and the increased amount of civic education courses.

Moreover, of specific interest in relation to our case, scholars have argued that it is not education per se, but rather specific kinds of curriculum that promotes political participation (Hillygus 2005; Nie & Hillygus 2001; Niemi & Junn 1998).<sup>3</sup> In these studies, a social science curriculum is shown to be especially effective in improving civic virtues. This gives us a twofold reason to expect that the reform had positive effects. Drawing on these studies it is reasonable to expect that not only the extension of educational length, but also the increased amount of civic courses given on vocational programmes, will positively affect the indicators of democratic citizenship among these students.

At this point it is important to note that we do not expect that the increased length of education and the amount of social sciences courses in vocational education will totally reduce the gap between students with vocational and theoretical educations. Of course, there might be factors that have a generally decreasing effect on indicators of democratic citizenship among all people in society during the time of the reform. However, even though the absolute levels might decrease, we still expect that the additional training on vocational programmes will dampen this effect among vocational students. Thus, even in that case, we still expect a decreased gap between students from theoretical and vocational programmes.

### *The Pre-adult Socialisation Model*

However, in the literature on educational effects, there is no agreement that education has absolute effects on individuals' democratic citizenship indicators in late adolescence. An implication of the well-known 'pre-adult socialisation model' is that education in late adolescence has limited effect since individuals' political predispositions are already established when they enter upper secondary school (e.g., Sears & Funk 1999; Searing et al.

1976; Alwin & Krosnick 1991; Hooghe & Wilkenfeld 2008; see also Sears & Levy (2003) for a research survey).<sup>4</sup> At this time, selection mechanisms in early adolescence have already shaped individual's choice of education programme. As a consequence, education given to 17–19 year-olds cannot be expected to have any substantial effects on democratic citizenship (e.g., Cassel & Lo 1997; Jennings & Niemi 1974; Langton & Jennings 1968; Sears 1989).<sup>5</sup> In particular, researchers who argue that political socialisation is a process that takes place early in life tend to put more emphasis on the persistent impact of parents rather than the effect of school (Beck & Jennings 1991; Achen 2002). In conclusion, if the hypothesis is to be proven valid, there should be no significant decrease in the gap between students on theoretical and vocational programmes as a consequence of the reform.

### *The Sorting Model*

Before proceeding any further, we also wish to include a third model that makes a more detailed stand on what kind of effects that can be expected. This is the so-called 'sorting model' proposed by Nie et al. (1996), which has recently been under debate in the literature on effects of education on democratic citizenship (e.g., Nie & Hillygus 2001; Hillygus 2005; Tenn 2005; Helliwell & Putnam 2007; Campbell 2006; Desjardins 2008). The sorting model rests on a distinction between two different kinds of effects of education: absolute and relative. According to Nie et al. (1996), education is supposed to affect individuals' *political enlightenment* (i.e., political knowledge and democratic values) in an absolute way via a *cognitive pathway*. On the other hand, education is supposed to have impact on *political engagement* (i.e., political participation) in a relative way via a *positional pathway*.

As regards *political participation*, education is seen as a 'positional good'. Education affects a person's social network position, which in turn is the main factor influencing political participation. Therefore, according to the sorting model, extended educational levels do not increase political participation: '[M]ore education among citizens only raises the baseline level of education for all positions' (Nie et al. 1996, 131–2). On the other hand, when education has effects through *the cognitive pathway*, individuals' verbal and cognitive skills are promoted in an absolute way. These skills are subsequently supposed to increase individuals' possibilities to gain knowledge about politics and appreciate the norms and legitimacy of democracy.<sup>6</sup>

In conclusion, the sorting model predicts that raised education levels will *not* lead to an increase in the levels of political participation. Yet raised educational levels will make the citizenry more tolerant and knowledgeable. In this article, we will test the following hypothesis: since students in vocational programmes maintain a lower position in the

education hierarchy even after the reform compared with students in theoretical programmes, we should not expect any significant increase in the levels of *political participation* among students in vocational programmes. Since the relative positions in the educational hierarchy remains more or less constant, we have no reason to believe that this gap should be leveled out.<sup>7</sup> Yet the gap concerning political knowledge and political attentiveness should have been decreasing as a consequence of the reform due to the fact that education is supposed to have absolute effects on these dimensions.<sup>8</sup> Incorporating *type of education* into the sorting model may seem to be a rather simple modification. However, as far as we know, it has not been done before.<sup>9</sup>

At this point, it should be emphasised that the three models described represent extreme opinions about the effects of education, and they have first and foremost a heuristic meaning. Of course, most researchers are aware of the fact that there are several factors that have an impact on democratic citizenship and civic skills. Likewise, there are indeed few authors who would argue that the absolute education effects model or the pre-adult socialisation model is the only valid one. However, the models help to explain possible causal pathways between education and political participation. Investigating the effects of the Swedish education reform may help us to point out the main causal relationship between education and democratic citizenship.

The empirical analyses are tailored to evaluate the credibility of the three models. The absolute education effects model expects to find positive effects on all core indicators of democratic citizenship, while the pre-adult socialisation model expects the effects of the educational reform to be small or non-existent. The sorting model expects to find significant effects of the reform on political knowledge and attentiveness, but not on political participation.

However, it is important to keep in mind that our focus is on whether the gap between vocational and theoretical programmes was decreased as a consequence of the reform. The three models predict the following consequences of the gymnasium reform regarding the gap: the absolute education effects model predicts that the gap has significantly decreased; the pre-adult socialisation model predicts that the gap will remain; and the sorting model predicts that the gap has partially decreased (i.e., the gap is expected to have decreased for political knowledge and attentiveness, but not for political participation).

## The Swedish Gymnasium Reform in 1994

The Swedish reform of the educational system in the 1990s provides a rare natural experiment that was absent in previous research.<sup>10</sup> The political

intention behind the new architecture of the 'unified gymnasium' was to create a 'school for everyone' that functioned like a 'social equaliser'. One of the ambitions was to level out the socio-economic gap between students on theoretical and vocational programmes (Government Bill 1990/91:85; SOU 1997:107 1997; Lundahl 2002, 691–2). Vocational programmes were extended from two to three years, and the amount of civic education provided to students on vocational programmes increased from virtually zero to 100 lesson hours. As a consequence of the reform, all students after 1994 were – at least in theory – exposed to the same amount of training in the core courses (including social science). However, since students on, for example, the social science programme take extra social science courses in addition to the core courses, they do still have a larger amount of social science exposure than students on vocational programmes.

The Swedish educational reform in 1994<sup>11</sup> harmonises with a long egalitarian policy tradition (see Meghir and Palme (2005) for a study of the effects of prior educational reforms). Historically, education policies have been considered to be a central part of the Swedish Social Democrats attempts to promote social equality. For example, Bo Rothstein (1996, 65) claims that 'school policy, just as labor market policy, was a component of a comprehensive political model for social change'. The unification of theoretical and vocational programmes in 1994 was made in accordance with this tradition since it was intended to reduce well-documented differences between students with different social backgrounds (Ekström 2003, 3; Lindensjö & Lundgren 2000, 4). The reform generated a massive reconstruction of the gymnasium system in order to equalise the quality and content of education (SOU 1997:107 1997). In an international comparison, similar unifications of theoretical and vocational educational programmes at a national scale are very rare (Lindberg 2003).

In this context, four main changes of the Swedish gymnasium are important. First, *the length of vocational study programmes was extended*. In the previous system, vocational programmes offered two years of study, while theoretical programmes varied from two to four years. In the new gymnasium, all educational programmes were standardised to three years (SOU 1997:107 1997). Second, a system with 'core subjects' was introduced. All 'core subjects' – such as mathematics, English and, most importantly, *social science* – are studied on all educational programmes. Regardless of what study programme the 'core courses' are given, their syllabuses should be equivalent. In other words, students in the social science and natural science programmes take the same core courses as students on, for example, the motor and transport-engineering programme or food-manufacturing programme.<sup>12</sup> Third, after the reform, students who successfully graduated from all national upper secondary school programmes, including the vocational programmes, matched the matriculation requirements for university studies



(Swedish National Agency for Education 2000). In the pre-1994 gymnasium, students in vocational programmes did not meet the requirements for university admission. Fourth, promoting democratic virtues in young citizens was heavily emphasised in the curriculum after the reform. For example, one of the central goals for schools to 'strive towards' is to 'develop [students] will to actively contribute to a deeper democracy in working and civic life' (Swedish National Agency for Education 2006, 15).

For readers unfamiliar with the Swedish educational system it is worth pointing out that the majority of Swedish students attend a theoretical or vocational gymnasium programme. In 2007, 72 percent of Swedish 20 year-olds had completed a gymnasium education (Swedish National Agency for Education 2008). Among those who completed the gymnasium, the majority went to one of the so-called 'national programmes' (theoretical or vocational).<sup>13</sup>

## Data

We aim to estimate the effects of the reform on three core dimensions of democratic citizenship: political participation, knowledge and attentiveness. Unfortunately, this broad array of dependent variables is not to be found in a single survey. Because of this, our evaluation of the gymnasium reform rests on statistical analyses of data from three sources: the Swedish National Election Studies (SNES 1994, 1998, 2002, 2006), the Swedish Citizen Study (SCS 1987, 1997, 2002) and the studies from the Society-Opinion-Media institute (SOM 1998–2006, YouthSOM 2000). All studies are based on national representative samples (except YouthSOM). The SNES studies and SCS studies are based on face-to-face interviews (response rates vary between 69 and 80 percent) carried out by Statistics Sweden (SCB), while the SOM studies are based on mail questionnaires carried out by the SOM institute at Gothenburg University (response rates vary between 60 and 68 percent).<sup>14</sup>

We would like to emphasise that the use of these datasets for measuring effects of education has considerable advantages compared to the data most often used in similar studies (i.e., questionnaires distributed in classrooms). The most prominent advantage of the data we use is that we are able to trace the long-term effects of education. Furthermore, our analyses draw on actually performed (voting) or reported political activities (contacts, manifestations and party activities), whereas studies of data from classroom questionnaires most often only contain measures of the *intentions* to participate in political activities.<sup>15</sup>

We pooled together the respective datasets from each series (SNES, SCS and SOM) and constructed subsets consisting of respondents who



where 19–29 years of age at the time of interview. The cut-off point of 29 years was chosen to strike a balance between two conflicting criteria: on the one hand, we wanted to analyse data collected as close to graduation from the gymnasium as possible, while on the other hand, we had to be certain that we had enough respondents in our statistical analyses.<sup>16</sup>

In order to produce accurate results, it is of course of the utmost importance to construct a valid measure of whether students went to the pre- or post-1994 gymnasium. Regarding the surveys before 1994, it is of course obvious that all students attended the pre-reform gymnasium. Regarding the surveys after 1994, we have separated the pre-reform students from the post-gymnasium students on the basis of year of birth. Since it is impossible that an individual born after 1978 would have attended the pre-reform gymnasium, all students born 1978 or later are coded as ‘post-reform’ irrespective of the year of the survey.

Since there are four treatment combinations in total (theoretical and vocational programmes before and after the reform), the design of the study is equivalent to a  $2 \times 2$  factorial experimental design. Such a design renders the possibility to investigate the impact of the two factors, and the interaction effects of them, on the dependent variables. The two factors are: *regime* (levels are pre and post the educational reform of 1994), and *educational programme* (levels are theoretical and vocational). However, it is not the main effects of regime or educational programme that is our main concern here. The empirical analyses focus on the *interaction effect* of regime (PP) and educational programme (VT). It is the size and direction of the effect ( $PP \times VT$ ) that determine the strength of the three hypotheses. We use t-tests to measure the differences between the individuals who attended vocational and theoretical programmes before and after the reform and ANOVA (analysis of variance) to measure the interaction effect of ( $PP \times VT$ ). Employing this research design and statistical techniques enables us to investigate whether the reform of the Swedish gymnasium levelled out the gap between students from theoretical and vocational programmes.

The empirical analyses will advance as follows. First, descriptive statistics for all core indicators of democratic citizenship are reported. Here we also present t-tests for differences of means between *educational programmes* for both educational systems (pre- and post-reform). In addition, results are illustrated with a number of graphs. Second, we perform analyses of variance in order to test whether the interaction effects ( $PP \times VT$ ) are statistically significant. Third, we perform additional tests for potential alternative explanations as to why the gap between students on vocational and theoretical programmes may or may not have changed after the 1994 reform.

Given the centrality of the effects of education in contemporary political participation research, one would expect that large national surveys included extensive and standardised measurements of all dimensions of education (length, type, content and educational trajectories of individuals). Unfortunately, some surveys actually did not include such extensive information. Consequently, the precision in the educational programme variable varies between data sources.

In the SNES datasets there is information about each respondent's highest achieved education. This means that if a person has achieved a university degree later in life, we cannot tell which gymnasium programme this individual attended. Before 1994 this constitutes no problem since only those who went to theoretical programmes met the entrance requirements to universities. We can quite certainly predict that an individual who has attended education at the university level has a theoretical gymnasium education.

In the years after the reform this is more complicated since students from vocational programmes also met the entrance requirements to attend universities. Even so, we know from external sources that young university students mainly have a study background from a theoretical gymnasium programme.<sup>17</sup> Individuals with post-gymnasium education are therefore coded as belonging to those who attended a theoretical programme. Of course, it would be preferable if we had information about every respondent's gymnasium education. However, excluding those who went to higher education after their gymnasium from the analysis would give a distorted impression of students on theoretical programmes. Those who do not attend university education after graduation from a theoretical gymnasium study programme are a minority of these students.

Since the SNES studies are two wave panels between elections, we can make corrections to the education variable by using information about respondents' gymnasium education taken from a previous panel wave. In addition, to compensate for the lack of precision in the gymnasium education variables we will analyse the differences between students who attended universities and students who only attended theoretical gymnasium educations.

In the SCS survey, we use the same procedure, coding university graduates as belonging to those who attended theoretical gymnasium study programmes. In SOM, we have a question about the level of education but also a question about the type of education that gives us the possibility of distinguishing between vocational and theoretical programmes. Finally, in YouthSOM there is fortunately a very precise question about what specific study programme individuals have attended during the gymnasium. The education variable in this dataset is therefore very accurate.<sup>18</sup>

With respect to the indicators of democratic citizenship that we use to test the credibility of the three models,<sup>19</sup> we investigate three core dimensions of democratic citizenship: political participation, political knowledge and political attentiveness.<sup>20</sup> All dependent variables in the analyses have been coded so that they vary between 0 and 1, where 1 indicates a positive answer (i.e., highest level of participation, knowledge, etc.). First, we investigate four different indicators of *political participation*: voter turnout, party activities, contacting and manifestations. Second, the *political knowledge* variables consist of two additive indices. The first index is made up of a set of questions concerning knowledge about which party a set of political leaders represent. These politicians are not party leaders; however, they have actively taken part in the political debate and have frequently been exposed to media coverage of Swedish politics. Thus, a political knowledgeable person would be aware of which party they represent. The second political knowledge index consists of eight questions concerning political events and the political system with true or false answers. Third, *political attentiveness* is measured by an additive index that is produced by three variables concerning interest in politics, to what extent an individual read about politics in newspapers and the level of participation in political discussions. In addition, we also use a standard survey question about political interests.

## Results

The presentation of the results will proceed in two steps. In the first step we examine whether there are significant differences in levels of democratic citizenship indicators between students from vocational and theoretical gymnasium programmes before and after the reform, respectively. In the second step we look closer at the interaction effect between gymnasium programme and the gymnasium reform in order to examine whether the reform has caused a significant decrease of the gap.

In order to examine whether the differences in levels of democratic citizenship between students from theoretical and vocational programmes are statistically significant, we first present descriptive statistics for all core indicators of democratic citizenship. To be able to get a grasp of the size of the gaps between students with different types of education before and after the reform, there are two sets with means and differences of means (pre- and post-reform) in columns (a)–(f) in Table 1. In these six columns, we present the mean scores for citizens who went to theoretical and vocational study programmes respectively, before and after the reform. In addition, we present results from 5 of the indicators as graphs to illustrate the change of the gap after the reform. All results in table 1 as well as all graphs draw upon data from the pooled datasets (for example, each graph illustrates all pre and post reform students clustered together).

Table 1. Indicators of *Democratic Citizenship* among Citizens 18–29 Years of Age from Vocational and Theoretical Study Programmes before and after the 1994 Educational Reform (Means, Differences of Means and F-values)

	Pre-reform			Post-reform		V-T gap change (difference-in- differences)	Analysis of variance			
	V-T difference		Vocational	Theoretical	V-T difference		F <sub>PP</sub>	F <sub>VT</sub>	F <sub>PP×VT</sub>	N
	Vocational	Theoretical								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
<i>Political participation</i>										
Voting <sup>1</sup>	0.79	0.91	+0.12***		0.77	0.89	0.74	46.48***	0.00	1,815
Party activities index <sup>2</sup>	0.01	0.04	+0.03**		0.00	0.05	0.01	4.26***	0.44	460
Contacting <sup>2</sup>	0.10	0.13	+0.03		0.10	0.11	0.19	0.39	0.11	460
Contacting <sup>1</sup>	0.05	0.15	+0.10***		0.09	0.11	0.00	9.93***	3.87**	863
Manifestations <sup>2</sup>	0.17	0.21	+0.04*		0.14	0.19	1.07	3.29*	0.23	455
<i>Political knowledge</i>										
Factual knowledge of current state-of-affairs and the political system <sup>1</sup>	0.65	0.73	+0.08***		0.45	0.54	209.53***	43.96***	0.00	1,310
Factual knowledge of political representatives <sup>1</sup>	0.22	0.38	+0.16***		0.12	0.25	47.87***	72.46***	1.11	1,204
<i>Political attentiveness</i>										
Political attentiveness index <sup>1</sup>	0.39	0.51	+0.12***		0.37	0.47	3.31*	53.72***	0.71	1,203
Political interest <sup>3</sup>	0.41	0.52	+0.11***		0.35	0.52	9.06***	183.37***	7.30***	3,437
Political Interest <sup>4</sup>	0.40	0.53	+0.13***		0.37	0.47	6.06**	52.61***	1.34	1,105

Notes: Columns (a), (b), (d) and (e) contain mean levels among individuals from theoretical and vocational programmes before and after the reform. Differences of means between individuals from theoretical and vocational programmes before the reform (column (c)) and after the reform (column (f)). Column (g) contains difference-in-differences. F-values for regime (pre-/post-reform) in column (h), educational programme (theoretical/vocational) in column (i) and the *interaction effect* of regime and educational programme (pre-/post-reform × theoretical/vocational) in column (j). Column (k) provides number of respondents. All results are from pooled datasets. Significance levels: \*\*\*p < 0.01; \*\*p < 0.05; \*p < 0.10.

Sources: <sup>1</sup>SNES (1994, 1998, 2002, 2006) (pooled). <sup>2</sup>Swedish Citizen Surveys (1997, 2002) (pooled). <sup>3</sup>SOM Surveys (1998–2006) (pooled). <sup>4</sup>Youth SOM (2000).

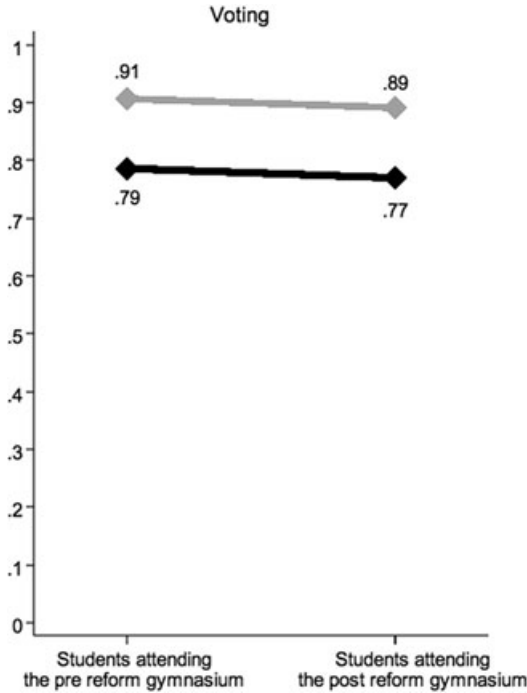
To compare whether the differences of means between students from theoretical and vocational programmes are statistically significant before and after the reform we conducted two-sample t-tests. In all, we report 20 t-test on ten indicators. First, regarding political participation, the results show that citizens who have completed theoretical educational programmes score higher than those who attended vocational programmes in *every comparison* both before and after the reform. Concerning party activities and manifestations, the gap is actually *increasing*. On the other hand, the gap is decreasing regarding *contacting*. However, the decline of the gap is not solely due to raised levels among students from vocational programmes; it is also due to the fact that students on theoretical programmes who went to the new gymnasium score lower than students who went to comparable study programmes earlier.

Next, we look closer at political knowledge. To corroborate the sorting model and the absolute education model, the raised educational levels would lead to a citizenry that is more knowledgeable. However, the knowledge gap is intact after the reform. The overall trend is that the levels of political knowledge are declining; yet the gap remains more or less intact. In relation to the absolute education model, it is unexpected that the gap concerning political knowledge has not decreased as a consequence of the increased amount of civic education to which the students in vocational programmes have been exposed. We move next to political attentiveness. Statistically significant gaps are evident in all comparisons between students from theoretical and vocational study programmes both before and after the reform.

To conclude, in every comparison there is a gap between students from theoretical study programmes and those from vocational study programmes (see Figures 1, 2 and 3). Most importantly, students from vocational programmes always score lower. Only for two indicators – *contacting* and *manifestations* – does the gap cease to be significant after the reform. However, it is important to note that in none of these cases do vocational students reach the same levels as theoretical students.

We have now shown that regarding most indicators there is a significant gap between students from vocational and theoretical educations both before and after the reform. Yet remember that our primary interest is on whether the reform caused a significant decrease of the gap. Even though there is still a significant gap after the reform, it is possible that the *decrease of the gap is statistically significant*. For that reason, we report difference-in-differences (the vocational-theoretical gap change) in column (g) in Table 1. If the reform has decreased the gap, the values of the difference-in-differences should be negative. However, what is of most interest is of course whether the differences-in-differences are statistically significant. For that reason our next step was to conduct ANOVA tests in

Figure 1a. Levels of *Voting* among Students from Theoretical and Vocational Gymnasium Programmes before and after the Reform.

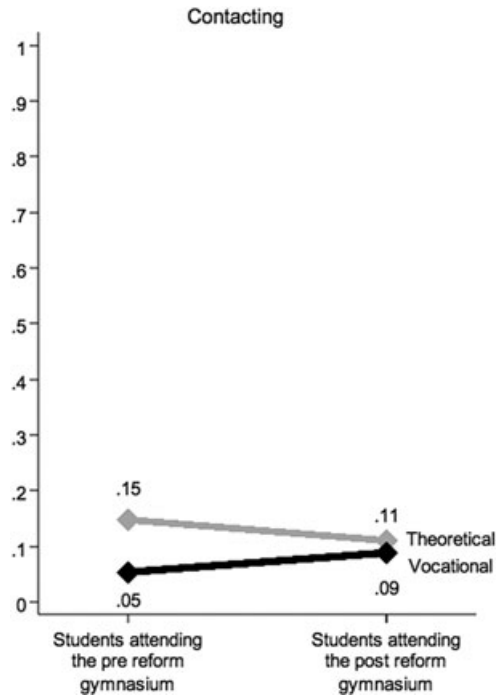


Source: SNES (1994, 1998, 2002, 2006) (pooled).

order to examine the *interaction effects* of study programme and educational system. The results from the ANOVA are reported in columns (h) to (j) in Table 1. Here we show the F-values for the two factors (pre-/post-reform and vocational/theoretical) and the interaction effect of gymnasium programme and the gymnasium reform (pre-/post-reform  $\times$  vocational/theoretical).

In all, ten ANOVA tests were conducted. We begin by looking at the indicators for political participation. As expected, we only find one significant interaction effect on these indicators: *contacting*. Regarding political knowledge and the political attentiveness index, there are no significant interaction effects. We have also conducted ANOVAs on the single variables of political interest. The interaction effect is significant in one of these tests, but this is because of an increase of the gap that is due to decreasing levels of political interest among students from vocational programmes (the difference-in-differences value is positive). In sum, the general trend is that

Figure 1b. Levels of *Contacting Politicians* among Students from Theoretical and Vocational Gymnasium Programmes before and after the Reform.



Source: SNES (1994, 1998, 2002, 2006) (pooled).

the reform did not cause a significant decrease in the size of the gap between students with different types of educations after the reform. Consequently, the hypothesis about positive effects of education receives weak support since there are no significant decreases of the vocational-theoretical gap after the reform on nine of ten indicators.

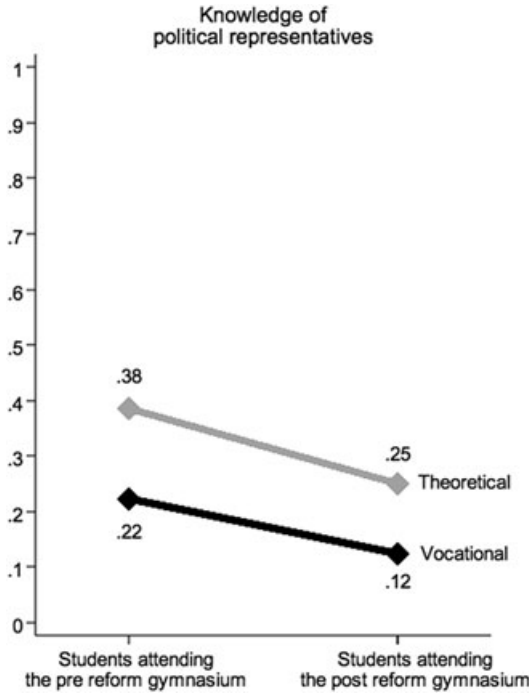
To conclude, the equalising effects of the Swedish gymnasium reform are very limited. It is unmistakable that the results strongly support the predictions made by the pre-adult socialisation model. On the other hand, results give only partial support to the sorting model, whereas the absolute education model is not supported at all.

## Additional tests

In order to investigate whether additional factors are concealing the positive impact of the reform, we will respond to a number of objections that



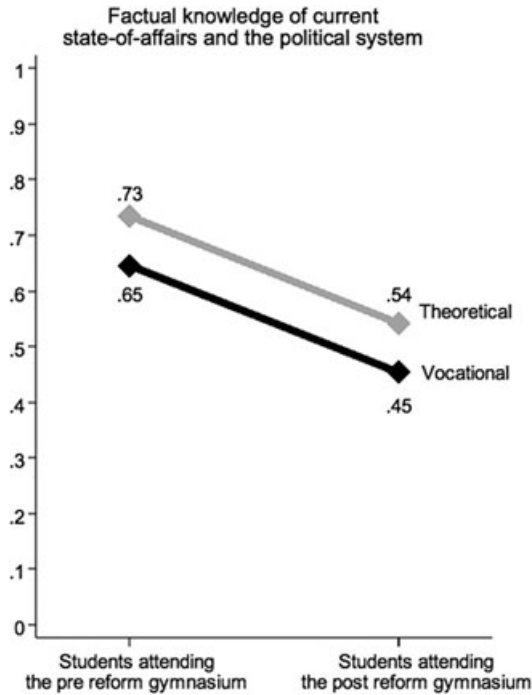
Figure 2a. Levels of *Knowledge of Political Representatives* among Students from Theoretical and Vocational Gymnasium Programmes before and after the Reform.



Source: SNES (1994, 1998, 2002, 2006) (pooled).

may arise. We will discuss four potential objections that may explain the absent positive effects of the reform: demographic changes, slow implementation, contextual changes and imperfect education programme variables. First, one might raise the objection that our results do not show a closed gap in levels of democratic citizenship between citizens with different types of educations because of demographic changes. We will investigate this objection by examining whether there was any change in the proportion of students with different social backgrounds on theoretical and vocational programmes after the reform. As a matter of fact, the social class distribution of students remained generally the same after the reform (see Table 2). The vocational programmes remained dominated by working-class students. Theoretical programmes, on the other hand, have a broader base and are dominated by students from the middle class. There is no remarkable change in the distribution of students from different social classes after the reform.

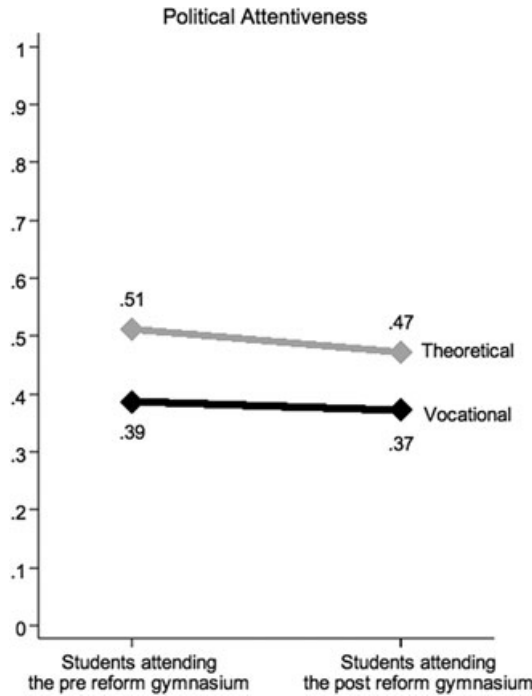
Figure 2b. Levels of *Factual Knowledge of Current State of Affairs and the Political System* among Students from Theoretical and Vocational Gymnasium Programmes before and after the Reform.



Source: SNES (1994, 1998, 2002, 2006) (pooled).

Second, major reforms of the educational systems may be difficult to implement and it will of course take a while to put a new educational system into practice. For example, Rothstein (1996, Chapter 7) has shown that prior school reforms in Sweden have been difficult to implement. Among other problems, old practices may be inherited into the new system. Therefore one could argue that it is not reasonable to expect that, by 1994, the new system was taking full effect. Consequently, a possible objection to why our results do not show any decreased gap could be that we have not let enough time to pass after the reform. We believe that our results hold for this objection. In order to undermine this counter-argument we have rerun our tests and compared the results from the SNES 1994 and 2006 surveys exclusively. At the time SNES 2006 was conducted, 12 years had passed after the reform. Even if the implementation of the reform was slow, it is reasonable to expect that enough time has passed for the reform to take effect.

Figure 3. Levels of *Political Attentiveness* among Students from Theoretical and Vocational Gymnasium Programmes before and after the Reform.



Source: SNES (1994, 1998, 2002, 2006) (pooled).

Table 2. Subjective Class Perceptions among Students on Theoretical and Vocational Gymnasium Study Programmes before and after the 1994 Reform (Percentage)

	Working class	White collar	White-collar high/academic	Farmer	Company owner
<i>Vocational programmes</i>					
Students attending the pre-reform gymnasium	80	10	0	3	6
Students attending the post-reform gymnasium	74	17	3	1	5
<i>Theoretical programmes</i>					
Students attending the pre-reform gymnasium	39	28	24	2	8
Students attending the post-reform gymnasium	42	26	26	0	5

Note: All rows do not add up to 100 due to rounding.

Source: SNES (1994, 1998, 2002, 2006) (pooled).

A detailed comparison between the results from the 1994 and the 2006 SNES surveys is supplied in Table 3. We clearly see that the gap has not significantly decreased even 12 years after the reform. The gap is increasing regarding voting and 'factual political knowledge of current state-of-affairs and the political system'. Once again, concerning contacting, the gap has decreased, but the interaction term is not significant. However, in general, the results from the 1994 and 2006 surveys exclusively do not alter from the results presented earlier in any significant way. In conclusion, even if we measure the levels of democratic citizenship characteristics 12 years after the reform, we still do not find any significant decrease of the gap between students from vocational and theoretical programmes.

A third objection to our results is that the gap did not close because of contextual changes. The argument goes like this: it is not reasonable to expect a decreased gap as a consequence of the reform since the contextual factors during the late 1990s and early 2000s are utterly different compared to the contextual factors in the 1980s and early 1990s. First and foremost, the 1990s in Sweden were characterised by a severe low recession in the business cycle, while during the 1980s the country experienced an economic upswing. The economic crises in the 1990s may have put more pressure on students from vocational programmes than students from theoretical programmes. These factors may have caused them to lose faith in politics – in effect, that may cancel out the positive effects of education.

Would we have seen a decreasing gap if the contextual factors had remained constant after the reform? Unfortunately, we cannot control for this kind of contextual changes in our analysis. For that reason we cannot refute this argument. However, we do not consider this to be a decisive argument for two reasons. First, it is not obvious why these contextual factors should have had a greater impact on students from vocational programmes than students from theoretical programmes. Second, it is not obvious why contextual factors of this kind should completely cancel out the positive effects of education on all examined dimensions of democratic citizenship.

A fourth objection to our results is that our analysis rests on imperfect education programme variables. Of course, it is a limitation that we do not have perfect education variables in all datasets. However, we will put forward two arguments that indicate that our results do not rest on flawed measures. First of all, in YouthSOM we have close to perfect information about which study programme individuals attended. Still there is no statistically significant decrease of gap between students with different types of education in these analyses. Second, in order to eliminate the possible effect of university education and separate the effect of gymnasium education we excluded all respondents with a university degree and re-ran our analyses (see Table 4). This time we exclusively compared those who 'only' have a gymnasium education. The results show that the vocational-theoretical gap is evident on

Table 3. Average Scores on Indicators of *Political Participation*, *Political Knowledge* and *Political Attentiveness* among Citizens 18–29 Years of Age Who have Completed Vocational and Theoretical Study Programmes before and after the 1994 Educational Reform, SNES 1994 and 2006 (Means, Standard Deviation and Differences of Means)

	1994 – pre-reform			2006 – post-reform			V-T gap change (difference-in-differences)			Analysis of variance		
	Vocational		Theoretical	V-T difference		Theoretical	V-T difference		in-differences	F <sub>PP</sub>	F <sub>VT</sub>	F <sub>PP×VT</sub>
	(a)	(b)		(c)	(d)		(e)	(f)				
<i>Political participation</i>												
Voting	0.83	0.94		+0.11***	0.77	0.93		+0.16***	+0.05	3.01*	36.76***	1.12
Contacting	0.06	0.15		+0.09***	0.09	0.12		+0.03	–0.06	0.01	6.05***	1.45
<i>Political knowledge</i>												
Factual knowledge of current state-of-affairs and the political system	0.64	0.71		+0.07***	0.41	0.50		+0.09***	+0.02	162.61***	21.00***	0.44
Factual knowledge of political representatives	0.29	0.42		+0.13***	0.12	0.24		+0.12***	–0.01	61.94***	32.65***	0.01
<i>Political attentiveness</i>												
Political attentiveness index	0.42	0.56		+0.14***	0.44	0.53		+0.09***	–0.05	0.01	24.76***	0.70

Notes: Columns (a), (b), (d) and (e) contain mean levels among individuals from theoretical and vocational programmes before and after the reform. Differences of means between individuals from theoretical and vocational programmes before the reform (column (c)) and after the reform (column (f)). Column (g) contains difference-in-differences. F-values for regime (pre-/post-reform) in column (h), educational programme (theoretical/vocational) in column (i) and the *interaction effect* of regime and educational programme (pre-/post-reform × theoretical/vocational) in column (j). Column (k) provides number of respondents. All results are from pooled datasets. Significance levels: \*p < 0.10; \*\*p < 0.05; \*\*\*p < 0.01.

Source: SNES (1994, 2006) (pooled).

Table 4. Indicators of *Democratic Citizenship* among Citizens 18–29 Years of Age on Vocational and Theoretical Study Programmes before and after the 1994 Educational Reform (Means, Differences of Means and F-values). Individuals Who have Attended Post-gymnasium Education Excluded.

	Pre-reform			Post-reform			V-T gap change (difference-in-differences)		Analysis of variance			
	V-T difference			V-T difference			V-T (difference-in-differences)	F <sub>PT</sub>				
	Vocational	Theoretical		Vocational	Theoretical				F <sub>PT</sub>	F <sub>VT</sub>	F <sub>PT×VT</sub>	N
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	
<i>Political participation</i>												
Voting <sup>1</sup>	0.79	0.87	+0.08***	0.77	0.87	+0.10***	+0.02	0.26	15.68***	0.04	1,201	
Party activities index <sup>2</sup>	0.01	0.05	+0.04**	0.00	0.04	+0.04***	0.00	0.29	4.04**	0.05	379	
Contacting <sup>2</sup>	0.10	0.13	+0.03	0.10	0.10	0.00	-0.03	0.25	0.26	0.16	379	
Contacting <sup>1</sup>	0.05	0.13	+0.08***	0.09	0.09	0.00	-0.08**	0.04	4.13**	3.89**	577	
Manifestations <sup>2</sup>	0.17	0.20	+0.03	0.14	0.19	+0.05	+0.02	0.83	3.00*	0.34	375	
<i>Political knowledge</i>												
Factual knowledge of current state-of-affairs and the political system <sup>1</sup>	0.65	0.70	+0.05***	0.45	0.52	+0.07**	+0.02	128.73***	15.53***	0.06	828	
Factual knowledge of political representatives <sup>1</sup>	0.22	0.32	+0.10***	0.12	0.19	+0.07***	-0.03	38.16***	20.19***	0.50	735	
<i>Political attentiveness</i>												
Political attentiveness index <sup>1</sup>	0.39	0.47	+0.08***	0.37	0.44	+0.07**	-0.01	2.15	19.98***	0.31	770	
Political interest <sup>3</sup>	0.41	0.46	+0.05***	0.35	0.46	+0.11***	+0.06**	5.80**	41.72***	4.32**	1,523	

Notes: Columns (a), (b), (d) and (e) contain mean levels among individuals from theoretical and vocational programmes before and after the reform. Differences of means between individuals from theoretical and vocational programmes before the reform (column (c)) and after the reform (column (f)). Column (g) contains difference-in-differences. F-values for regime (pre-/post-reform) in column (h), educational programme (theoretical/vocational) in column (i) and the *interaction effect* of regime and educational programme (pre-/post-reform × theoretical/vocational) in column (j). Column (k) provides number of respondents. All results are from pooled datasets. Significance levels: \*\*\*p < 0.01; \*\*p < 0.05; \*p < 0.10.

Sources: <sup>1</sup>SNES (1994, 1998, 2002, 2006) (pooled). <sup>2</sup>Swedish Citizen Surveys (1997, 2002) (pooled). <sup>3</sup>SOM surveys (1998–2006) (pooled).

most indicators even when citizens who went to universities are excluded. Regarding political participation, there are statistically significant differences on voting and party activities both before and after the reform. Concerning political knowledge and political attentiveness, statistically significant gaps on all indicators between students with different types of education remain after the reform. Looking closer at the interaction terms in column (j) reveals that it is only on one of the indicators (contacting) that the decrease of the gap is statistically significant. In conclusion, even if we compare students from vocational programmes with the students who 'only' went to theoretical gymnasium programmes and have no further education the general trend is still that the reform did not significantly decrease the gap.

## Conclusion

We have provided the first systematic analyses of the effects of the radical unification of the Swedish educational system in the 1990s on indicators of democratic citizenship. The results from our investigation clash with the results (as well as many hopes and expectations) in previous research on educational effects. Years of education are generally considered to be a solid predictor for democratic citizenship dimensions such as political participation and political knowledge. However, we find that an additional year of education did not reduce systematic differences in levels of democratic citizenship related to type of education. Furthermore, providing extensive social science courses did not promote the various dimensions of democratic citizenship. Nevertheless, we do not claim that education lacks any effects whatsoever. What we do claim to have shown is that the Swedish school reform did not reduce the gap between students on theoretical and vocational programmes. The reformed educational system has not been better able to reduce these differences than the previous gymnasium before the major changes in the 1990s.

What implications do the results have for the three models? Our results give the most support to the pre-adult socialisation model since there are very limited effects of an extra year of education as well as an increased amount of civics courses. Most importantly, our results weaken our confidence in the absolute education effects model. Our results show clearly that increased levels of education and changed curriculum content do not necessarily work as a quick fix to equalise levels of civic outcomes. Nevertheless, one should be careful to note that the absolute education model and the pre-adult socialisation model represent two extreme expectations on the effects of education. It is a central task for research on education effects on democratic citizenship to identify what kind of education has the greatest effect at which point in life. Our contribution to the field is to show that a rise in educational levels in late adolescence seems to be of minor importance. However, this is somewhat



unexpected in relation to some previous research. For example Niemi and Junn (1998, 156) conclude that civic education during post-secondary school has the *most* impact.

Moreover, the revised version of the sorting model gains only partial support. According to Nie et al. (1996), a more educated citizenry would not increase political participation. Still, citizens would become more knowledgeable when the levels of education increase. However, the reform of the Swedish gymnasium did not even seem to equalise levels of political knowledge.

Furthermore, we wish to make clear once again that the design of this study allow us to discriminate the effects of *type of education* from *educational length* and *educational content*. While educational length was increased and the curriculum content was modified, the overall type of education generally remained the same. Thus, our results indicate that type of education is a potentially important factor that needs to be taken into account in analyses of levels of democratic citizenship.

However, the crucial question of *how* the type of study programme may matter remains unanswered. There are a number of potential explanations. First, certain shared values may develop among the students on specific study programmes. In other words, the remaining gap between students on different educational programmes may be a consequence of shared norms and patterns of behaviour that evolve among students on the study programmes. Second, it may be an effect of value transmission: since some curriculums put a greater emphasis on specific norms, it is possible that it has effects on the students' political behaviour. Third, the quality of education in the core courses on vocational programmes may be lower than on theoretical programmes. Moreover, the classroom climate has been considered to be of major importance in a number of studies on educational effects. It would be of interest to know whether the level of openness of the 'classroom climate' differs on those education programmes the individuals in this study went attended.<sup>21</sup> A fourth possibility is, of course, that the effect of education is spurious and what matters are family background and the environment in which people grew up. In conclusion, we have shown that type of education might be a potentially important dimension of education. However, how and why it matters in relation to democratic citizenship is still an open question.

## Appendix. Question Wording and Variable Constructions

All dependent variables have been coded so that they vary between 0–1, with 1 indicating that respondents give a positive answer to all the questions included in the index (or all correct answers to the knowledge questions).

### *Political Participation*

*Party activities (SCS)*: An additive index produced by three questions: 'Are you a member of any party or political organisation?' 'During the last year, have you participated in any political meeting?' 'During the last year, have you been working in a political party?'

*Contacting (SCS)*: An additive index produced by the question: 'There are different ways to try to make the society better or to counteract deterioration. Have you done any of the following during the last year: Contacting a politician? Contacting an association or organisation? Contacting media? Contacting a civil servant in the state or municipality?'

*Manifestations (SCS)*: An additive index produced by six dichotomy questions concerning whether the respondent has done any of the following activities: signed a list of signatures; worn campaign symbols; participated in a demonstration; participated in illegal protest activities; collecting money for any organisation or boycotted any goods.

*Voting (SNES)*: Consists of information from the electoral register concerning whether or not the respondents have been voting in the parliamentary (Riksdag) elections.

*Contacting (SNES)*: An additive index consisting of three questions (except for SNES 1994 which consists only of the two first questions): 'During last year, have you been to any meeting or gathering where any member of the parliament has appeared?' 'During the last year, have you written letters or e-mail, or in any other way, tried to get in touch with any Member of Parliament?' 'During the last year, have you visited any website belonging to a Member of Parliament?'

### *Political Knowledge*

*Political knowledge (SNES)*: An additive index based on five questions about Swedish politics and the political system. The index varies between 0 (0 right answers) and 1 (7 right answers).

The first political knowledge index – factual knowledge of current state-of-affairs and the political system – consists of eight questions concerning political events and the political system with true or false answers. The second political knowledge index – factual knowledge of political representatives – is made up of a set of questions concerning knowledge about which party a set of political leaders represent. These politicians are not party leaders; however they have actively taken part in the political debate and have frequently been exposed to media coverage of Swedish politics.

### *Political Attentiveness*

*Political attentiveness*: An index consisting of three questions: 'How much do you usually read of news and articles about politics in the newspapers?'

Respondents choose one of four options: 1. I never read news and articles about politics. 2. I read news and articles about politics sometimes. 3. I often read news and articles about politics. 4. I read all there is of news and articles about politics in the newspaper every day. The variable is recoded so that it varies between 0 and 1. Answer 1 is coded as 0 and answer 4 is coded as 1. The second question is: 'How interested are you in general about politics? Are you very interested, fairly interested, not particularly interested or not interested at all.' The variable is coded so that it varies between 1 (very interested) and 0 (not interested at all). The third question is: 'How often do political discussions take place in your closest surroundings? Does it take place: very often, quite often, not very often or not at all?' The variable is coded so that it varies between 1 (very often) and 0 (not at all). The index variable is a mean calculated of the three single variables.

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## NOTES

1. Even though type of education and content of education are overlapping concepts, we wish to make clear that they represent different dimensions of education that may have different causal effects on democratic citizenship. The content of education may have an impact on democratic citizenship since the courses studied may have positive effects on individuals' civic skills. The type of education may, for example, have effects on the students' future social network position, which in turn may have impact on their levels of political participation. Moreover, it is worth to point out that 'type of education' can be viewed differently in other educational contexts where the division between 'theoretical' and 'vocational' educations is less evident.
2. We do not claim that the three dimensions of democratic citizenship represent a conclusive characteristic of the ideal democratic citizen. What kind of citizenship ideal that is considered as most desirable depends, of course, on which democratic theory one subscribes to. However, the three dimensions constitute the central elements of democratic citizenship that most often appear in analyses in contemporary literature (e.g., Nie et al. 1996; Westholm et al. 1990; Niemi & Junn 1998; Nie & Hillygus 2001; Hillygus 2005; Helliwell & Putnam 2007).
3. It should be noted that different kinds of curriculum could also refer to the distinction between formal and informal curriculum. Different kinds informal curriculums might of course also affect democratic citizenship (see, e.g., Print 2007).

4. A version of this model is sometimes referred to as the 'impressionable years model of political learning', according to which 'core dispositions continue to crystallize well past adolescence, although at a slowed rate, perhaps reaching an asymptote at the end of early adulthood' (Sears & Funk 1999, 2).
5. An extended argument is put forward by Robert Luskin (1990). He claims that education does not have any major influence on 'political sophistication'. Education has, according to Luskin, only a spurious effect; it takes credit for other factors such as intelligence.
6. See Persson (Forthcoming) for an investigation of the sorting model in Sweden.
7. In a study of Swedish youths conducted by the Swedish National Agency for Education, it is shown that students on vocational programmes still have lower status than students on theoretical programmes after the reform. Students from both programmes claim that vocational students have the lowest status whereas theoretical students have higher status (Swedish National Agency for Education 1995).
8. In fact Nie et al. (1996, 61) argue that the effect of education on political attentiveness could be *both* absolute and relative. Yet this gives us reason to expect the gap concerning political attentiveness should be decreased to a greater extent than the gap in political participation.
9. To our knowledge, the only attempt made earlier to include other factors than length of education into the sorting model is done by Hillygus (2005), who includes both quality of the institution attended and the curriculum studied in the 'social network hypothesis'.
10. Preceding the reform, a pilot scheme that offered three-year vocational programmes was carried out in a number of municipalities. It would have been preferable if we could compare students who went to the pilot scheme programmes to those who went to the 'old' gymnasium at the same time. For a number of reasons we have not been able to do that. First, we do not know in which municipality the respondents went to gymnasium. Therefore, we cannot distinguish students from pilot scheme municipalities from non-pilot scheme municipalities. Second, in the pilot scheme municipalities, students were offered both two- and three-year study programmes. Thus even if we knew at which municipality each respondent attended gymnasium studied, we could not show if a student went to a pilot scheme programme or not. Unfortunately, the pilot scheme brings some marginal distortion to our education programme variables before the reform. The number of students who attended pilot scheme programmes was 5.8 percent during the first year, 9.4 percent during the second and 10.5 percent during the third year. See Ekström (2003) for a detailed account of the pilot scheme.
11. The decision was made in 1991, but the reform was implemented on a national scale in 1994.
12. When the curriculum preceding the reform were in practice, students on the vocational programmes had to choose at least one of a number of courses, including social science, upon which to spend the maximum three hours every week. Consequently, depending on the choice of subjects, some students did not attend any social sciences (civics) courses at all in upper secondary school. After the reform, the core subjects cover a substantial part of the 2,500 upper secondary credits of which every programme comprises: 'All of the national programmes include the eight core subjects of: English, the Arts, Physical Education and Health, Mathematics, General Science, Social Studies [civics], Swedish (or Swedish as a Second Language) and Religion. Together, the core subjects add up to 750 credits' (Swedish National Agency for Education 2000). Every student on a national programme takes 100 credits in social science; 1 credit is equal to 1 lesson hour.
13. In addition to the national programmes there are also a number of specially designed ones and a so-called 'individual programme'. Students who attend the specially designed programmes take the core courses and gain admittance to universities (approximately 10 percent of the students attend these programmes). However, students who fail to get accepted into one of the national programmes

may attend the 'individual programmeme' that is intended to prepare and qualify students for attending a national programmeme. There are an increasing number of students who attend the 'individual programmeme' (approx. 8 percent of students in 2006/2007). Students from the individual programmeme are not included in the analyses.

14. With the exception of SCS (2002), all data are deposited at the Swedish Social Science Data Service (<http://www.ssd.gu.se>). SCS: SSD0474, SSD0796. SNES: SSD0812, SSD0750, SSD0570, SSD0812. SOM: SSD0851, SSD0827, SSD0813, SSD0801, SSD0797, SSD0761, SSD0746, SSD0739, SSD0821, SSD0853, SSD0861.
15. On the other hand, there are of course advantages for classroom questionnaires as well since they might capture factors such as group culture, classroom climate and so on.
16. The inclusion of respondents that have graduated up to ten years ago may be considered to have potentially negative implications for our analysis. Obviously, processes that take place during the period after graduation may substantially blur the direct effects of education. However, let us underscore what we are interested in *whether the reform had any long-term equalising effects on democratic citizenship*. Consequently, in this article we are not interested in the effects of education in relation to other factors that may also influence levels of democratic citizenship.
17. E.g., in 2006, 74 percent of those who attended universities before they were 21 years old had completed a theoretical study programmeme (Swedish National Agency for Higher Education/Statistics Sweden 2007, 80). However, for older students, there are more who have a study background from vocational programmemes.
18. Additional information about the coding of the type of education variables is available upon request from the authors.
19. Unfortunately, we have not been able to include tolerance in our analysis. The available datasets lack measures of tolerance that are comparable before and after the reform.
20. The working paper version of this article also includes *trust* as a dependent variable (see Persson & Oscarsson 2008).
21. Previous studies point out that the classroom climate on vocational programmemes generally is less open than on theoretical ones (Ekman 2007).

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