

Students' Civic Knowledge Achievement - a Cross-National Comparative Analysis

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Students' Civic Knowledge Achievement – A Cross-National Comparative Analysis

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July 2021



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ABSTRACT

Can education system conditions explain cross-national differences in civic knowledge achievement? Data of the International Civic and Citizenship Education Study (ICCS) 2016¹ show that OECD countries significantly differ in their overall levels of civic knowledge as well as in their social inequities of civic knowledge among students. This study applies multi-level analyses to identify education system conditions that are associated with students' civic knowledge. The results show a post-graduate degree for teachers, horizontal curriculum integration of civic issues, and a macro-societal culture of classroom debate being positively associated with students' levels of civic knowledge, while tracking by performance is negatively associated with civic knowledge achievement. Moreover, some education system conditions have varying impacts on students depending on their social backgrounds and therefore can potentially reduce or reinforce the inequities of civic learning. The results can inform policymakers about potential means to make civic education more effective and accessible for all students.

ZUSAMMENFASSUNG

Können internationale Unterschiede im Niveau politischer Bildung durch bildungssystemische Bedingungen erklärt werden? Daten der International Civic and Citizenship Education Study (ICCS) 2016 zeigen, dass sich OECD Länder deutlich hinsichtlich des politischen Wissenserwerbs von Schüler:innen unterscheiden. Auch die soziale Ungleichheit politischer Bildung hängt teils stark vom jeweiligen nationalen Kontext ab. In dieser Studie werden anhand von Mehrebenenanalysen, bildungssystemische Bedingungen identifiziert, die einen Zusammenhang mit dem politischen Wissenserwerb von Schüler:innen aufweisen. Die Ergebnisse weisen darauf hin, dass hohe Anforderungen an die Lehrkräfteausbildung, fächerübergreifende politische Bildung anstatt der Isolation im Politikunterricht und eine Kultur der politischen Diskussion im Klassenzimmer positiv mit dem politischen Wissenserwerb von Schüler:innen assoziiert sind, während ein nach Leistung gegliedertes Sekundarschulwesen negativ mit dem politischen Wissenserwerb zusammenhängt. Darüber hinaus haben manche bildungssystemische Bedingungen unterschiedliche Einflüsse auf Schüler:innen unterschiedlicher sozialer Herkunft und haben somit das Potenzial soziale Ungleichheit zu reduzieren oder gar zu verstärken. Die Ergebnisse liefern der Bildungspolitik Anhaltspunkte für Rahmenbedingungen, die politische Bildung effektiver und für alle Schüler:innen zugänglicher gestalten können.

KEYWORDS

Civic knowledge, civic and citizenship education, education policy, comparative education, multi-level analysis, International Civic and Citizenship Education Study (ICCS)

1 <https://www.iea.nl/data-tools/repository/iccs> (last accessed July 21, 2021).

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INTRODUCTION

How do democratic and highly developed countries differ in young people's achievement of civic knowledge and can education system conditions explain these differences? Civic and citizenship education in primary and secondary schools is widely ascribed a major role in civic knowledge formation (Almond & Verba 1963; Carpini & Keeter 1996; Galston 2001; Langton & Jennings 1968: 853). But the question of how and by which means education policy can contribute to high and equally distributed levels of civic knowledge in society is still scarce. Elitist democratic theories claim the distribution of civic knowledge being mainly a function of individuals' capacities to understand political matters along with the pessimistic view that low levels of civic knowledge in some parts of society are an incurable problem of democracy (Berelson 1952; Hyman & Sheatsley 1947; Luskin 1990; Mueller 1992; Neuman 1986; Schattschneider 1960; Schumpeter 1942; Smith 1989). Carpini and Keeter (1996) in their publication 'What Americans know about politics and why it matters', contradict this view and state that individuals' civic knowledge is not only a function of individual traits and capabilities but to a great deal shaped by the macro societal context, mainly civic and citizenship education. The question remains, which concrete features of civics and citizenship education have the potential to make civic knowledge more or less accessible and more equally or unequally distributed? This cross-national comparative study applies data of the International Civic and Citizenship Education Survey (ICCS) 2016 to analyses how education system conditions are associated with civic knowledge achievement of teenaged students. While the ICCS includes a much broader range of countries, the sub-sample of OECD countries allows focusing on the education system by controlling for a set of basic macro-societal (economic parameters) and political (democratic constitution) conditions.

Factual civic knowledge is mostly defined as the knowledge about the political institutions, processes, and basic constitutional principles, rights and duties (Carpini & Keeter 1996: 1). Unquestionably, the goal of civics education is broader than simply providing young people with knowledge about politics. Rather, besides *cognitive knowledge*, civic and citizenship education aims at *behavioral* and *dispositional* outcomes as well (for example Anderson, Avery et al. 1997: 335; Galston 2001: 221; Reichert & Torney-Purta 2019: 212; Torney-Purta 2002: 203): Behavioral outcomes are the *acquisition of civic and citizenship skills and competences* namely, developing and reflecting on opinions, participating in and influencing discourse, engaging in political and social processes, taking responsibility in society and politics. Dispositional outcomes focus on *shared societal values* such as democracy, tolerance, human rights, diversity etc. This paper focuses on the achievement of factual civic knowledge since it is often seen as a fundamental condition for the functioning of democracy and as a prerequisite of other civics and citizenship education outcomes (Carpini & Keeter 1996: xii, 5; Langton & Jennings 1968): Factual civics knowledge enables individuals to put their own interests in relation not only to empirical facts but to the public good (Carpini & Keeter 1996: 5, 218; Connolly 1983; Mill 1859). Individuals with stronger factual civic knowledge are also shown to be more likely to demonstrate civic virtues such as tolerance, active participation in the political process, feel empowered to influence the political process, and more often hold stable and consistent opinions on a broad range of topics (Galston 2001). Popkin & Dimock (1999) show that citizens with low basic civic knowledge have weaker abilities to follow the public discourse, are less likely to compromise in democracy, and rather judge politicians on character than on content. People who are civically informed are therefore seen as the linchpins of a democratic political culture (Coleman 1979; Galston 2001; Green, Preston & Janmaat 2006). Carpini and Keeter (1996: 2) even argue that high levels of civic knowledge in all parts of society are the only true safeguard of democracy against destructive impacts of extremist and anti-democratic movements and that checks and balances are only effective in the presence of a well-informed public. A strong dependence of individuals' civic knowledge achievement on their socio-economic backgrounds – social inequality – exaggerates the problems going along with low levels of civic knowledge in

society (cp. Hoskins & Janmaat 2019). Strong social inequities of civic knowledge will also make the access to the political process more unequal. This will ultimately lead to socially biased policies that are less responsive to the needs of the socially disadvantaged (Galston 2001; Habermas 1984; Langton & Jennings 1968). In this regard, Carpini and Keeter (1996) state that the low levels of civic knowledge in the United States “result in substantial inequities in who participates, in how effective their participation is, and, ultimately, in who benefits from the actions of government” (Carpini & Keeter 1996: 3).

The paper is structured as follows: The following section includes, based on existing literature, the hypotheses on how the education system conditions can impact individuals’ civic knowledge achievement. The third section introduces the data and the analytical methods. Section four presents the results of the multi-level analyses. The paper concludes with a summary and discussion of the main findings.

THE EDUCATION SYSTEM AS THE FORGE OF CIVIC KNOWLEDGE

Educating for citizenship has since the early beginnings of public education been a core mission of schooling (Galston 2001: 231; Humboldt 1982; Langton & Jennings 1968; Mann 2010). There is scholarly consensus, that the formal education system and most specifically, civic and citizenship education, plays a major role in civic knowledge production (Almond & Verba 1963; Carpini & Keeter 1996; Galston 2001; Langton & Jennings 1968: 853). Paradoxically, the enormous absolute increase of education in all industrial nations over the past decades has not translated into higher levels of civic knowledge (Galston 2001; Green & Preston 2001). Answering the question of whether this is a result of failing civic instruction in schools, requires a stronger focus on how education systems – and specifically civic and citizenship education – affect civic knowledge achievement (Torney-Purta 1997: 447, 453, 456). The following section presents some hypotheses on the impact of the education system on civic knowledge achievement. What are the education system conditions that can influence individuals’ civic knowledge achievement? Some research has identified classroom and school level aspects that improve civic learning. Can these results inform the national education policy level? This study explores a battery of macro education system conditions for the cross-national differences in civic knowledge achievement: the strength of the private school sector, the amount of civic and citizenship instruction time, the civic and citizenship curriculum variety, tracking-by-performance, the horizontal curriculum integration of civic issues, a culture of debate in the classroom, and the qualification of teachers.

The role of private vs. public education

The role of public schooling for societal cohesion and educating informed and engaged citizens was a major incentive for the establishment of *public education systems* about two hundred years ago (Galston 2001; Humboldt 1982; Mann 2010). Public schools have ever since been an assembly of future citizens. They are seen as a place to convene diverse parts of society and as an opportunity to exchange perspectives (Stouffer 1955: 127). Private schools by contrast are often seen as a driver of elitism and societal separation and the dedication of private schools to civic and citizenship education and for a cohesive society is often questioned (Galston, 2001). The empirical results however are controversial (Niemi & Jane Junn 1998: 84; Peterson & Campbell 2001) and sometimes challenge the view of public schools as the singular origin of a unified civil society (Galston 2001). Can cross-national differences of the private school sector explain varying civic knowledge achievement?

Hypothesis 1: In countries with a strong private school sector, young people show lower levels of civic knowledge.

Instruction time of civic and citizenship education

The instructional time is a proxy for how much value a curriculum devotes to civic education (Andersen, Humlum & Nandrup 2016; Haertel, Walberg & Weinstein 1983; Niemi & Jane Junn 1998) and the more instructional time students receive, the more 'opportunities to learn' they have (Schmidt, Burroughs, Zoido & Houang 2015). However, the question of whether instruction time directly translates into better learning outcomes has been controversially discussed across different learning subjects (Wayne C. & Walberg 1980). Instruction time macro-political indicator that mainly varies between education systems and less much between classrooms and schools. This study therefore explores whether the instruction time for civics and citizenship education specified in the national curricula is associated with students' civic learning outcomes.

Hypothesis 2: The more weekly civic and citizenship education instruction time the national curriculum defines, the higher is the level of civic knowledge among students.

Horizontal curriculum integration

Horizontal curriculum integration describes whether civic issues are integrated into the curricula of other subject areas such as science classes or the humanities. Conover & Searing (2000: 111–113) for example show that civic education in non-civic classes are even more effective in increasing civic knowledge among students than explicit civic and citizenship education instruction (see also Galston 2001). The integration of civic issues into science classes (e.g. environmental issues), economics classes (employment protection, salaries, etc.), or literature classes, can exemplify the relevance of civic issues for concrete matters. While the ways how teachers implement curriculum can vary between classrooms, this study focuses on the variations between official curricula on the macro-political level.

Hypothesis 3: If the national curriculum integrates civic and citizenship explicitly into other curriculum subjects, the level of civic knowledge is higher among youth.

Curriculum variety in civic and citizenship education

Official civic and citizenship education curricula also vary in the *range of topics and learning goals they specify*. Niemi & Junn (1998) find significant positive effects on civic knowledge if a broad variety of topics are covered in the curriculum. Curriculum contents ensure that students are exposed to a certain set of learning opportunities in the field of civic education. The more content areas and learning objectives are specified, the more opportunities of learning students from all social classes should have and the less dependent their knowledge should be on family-based experience (Schmidt et al. 2015).

Hypothesis 4: The stronger the curriculum variety in civics and citizenship education, the higher is the degree of civic knowledge among youth.

Culture of debate in the classrooms

A variety of literature stresses the importance of classroom discussion for civic education (Crocco, Segall, Halvorsen & Jacobsen 2018). When students frequently *discuss current political and societal events* in the classroom, they show higher levels of civic knowledge (Almond & Verba 1963; Crocco et al. 2018; Niemi & Jane Junn 1998). Such regular discussion exercises students' political judgement and the ability to weigh different perspectives. During these discussions students also have the opportunity to transfer complex theoretical knowledge about the functioning of democracy to relevant issues. According to Galston (2001), classroom discussions are also a significant factor to reduce social inequalities in civic knowledge since it provides students who are usually not in contact with the political discourse with a valve to participate. Studies exploring the impact of debating in the classroom focus on the classroom level since classrooms

are the units where debates take place and how discussion is implemented strongly depends on individual teachers. However, political debate may not only be a function of individual teachers and classrooms, but also of a macro-societal culture of debate. This study therefore explores whether such macro-societal cultures of debate are associated with civic learning outcomes.

Hypothesis 5: The stronger the macro-societal culture of political discussion in the classrooms, the higher is the civic knowledge among youth.

Tracking of students by performance

Tracking of students by performance either into different school types or in specific school programs in secondary education is officially supposed to create homogeneous learning environments that ideally ensure an instruction and curriculum tailored at individual needs and capacities. Many studies however show that tracking often rather relies on socio-economic backgrounds of students than on their true capacities (Stern & Hofer 2014) and might not respect their highly individual learning curves (Yeatman, Dougherty, Ben-Shachar & Wandell 2012). Moreover, students in different tracks face different 'opportunities to learn' (Schmidt et al. 2015) what constraints educational upwards mobility mainly of students from weaker social backgrounds (Bodovski, Byun, Chykina, Chung 2017; Coleman 1979; Freitag & Schlicht 2009; Gamoran & Mare 1989; Lucas 2001; Saporito & Sohoni 2007; Schlicht, Stadelmann-Steffen & Freitag 2010; Solga & Wagner 2001). With regard to civic and citizenship education comprehensive learning might even play a more important role than in other subjects. Similar to the arguments of public vs. private education, socially diverse classrooms can promote the ability of taking perspective (Stouffere 1955: 127). In tracking systems, which implicitly segregate by social background, these integrative sources of civic learning should be weakened.

Hypothesis 6: Tracking systems in secondary education that apply to civic education instruction, show lower levels of civic knowledge among youth.

The qualification of teachers

A variety of learning frameworks (Wang, Haertel & Walberg 1990) stress the importance of *teacher qualification* for learning outcomes. Many studies show that higher qualifications of teachers increase students' learning achievements (Aronson, Barrow & Sander, 2007; Augusteijn & Storm, 2012; Croninger, Rice, Rathbun & Nishio, 2007; Darling-Hammond, 2000; Eckert, 2013; Evertson, Hawley & Zlotnik 1985; Lasley, Siedentop & Yinger, 2006; Meroni, Vera-Toscano & Costa 2015; Rivkin, Hanushek & Kain 2005). In some education systems, the access to highly qualified teacher is unequally distributed between schools and school districts depending based on their socio-economic context (Freedman & Appleman 2009; Ingersoll 2003; Lankford, Loeb & Wyckoff 2002). Schools in socio-economically challenged districts are often served by more weakly qualified teaching staff. This is especially notable since a high teacher qualification has been shown to be most beneficial for students from socio-economically weaker backgrounds (Nye, Konstantopoulos & Hedges 2004). Most of the studies are however within country analyses with no to little variation of the license requirement among teachers. The strongest variation of academic teacher qualifications can be observed across national education systems. OECD countries particularly differ in whether they require an undergraduate or a post-graduate degree for teaching civic and citizenship education in secondary schools.

Hypothesis 7: School systems that require a post-graduate degree for teachers of civic and citizenship education in secondary education, show higher levels of civic knowledge among students.

METHODS AND DATA

This study applies data of the 2016 ICCS and focuses on the sub-sample of the OECD member states. The focus on the OECD sample enables to control for a variety of socio-economic context factors such as the economic wealth, political stability and democratic history, as well as the general level of education in the countries. These macro-societal aspects besides the education system could be major drivers of civic knowledge achievement but are kept reasonably constant in this sub-sample. The case selection includes 15 OECD countries plus one German federal state (North Rhine-Westphalia/DNW). Germany as a whole did not participate in the ICCS. While North Rhine-Westphalia cannot represent the overall picture of Germany, including a single federal state reflects the strong decentralized education system in Germany where the federal states carry the sovereignty of education policy and vary in their educational outcomes (Schlicht 2011). The other OECD countries included are: Belgium (BFL), Denmark (DNK), Sweden (SWE), Finland (FIN), Norway (NOR), South Korea (KOR), Estonia (EST), Netherlands (NLD), Slovenia (SVN), Italy (ITA), Lithuania (LTU), Latvia (LVA), Malta (MLT), Chile (CHL), and Mexico (MEX).

To measure the individual level data – civic knowledge (dependent variable) as well as parental social background (independent variable), immigration background and gender (control variables) we use the ICCS ‘students questionnaire dataset’ which includes a random sample of 55.201 students in all 16 OECD units, who are nested in random samples of schools within these countries. Our dependent variable – civic knowledge – is measured by an index provided by the ICCS (plausible value PV1CIV). The civic knowledge test includes a series of multiple choice and constructed-response items evaluating students’ knowledge of civic principles and their ability to reason and apply knowledge about civic society and systems (exemplary items in table 1) (Köhler, Weber, Brese, Schulz & Carstens 2018). The students are randomly assigned to one of eight different test questionnaires - each with different test items.

Table 1: Exemplary items of the civic knowledge test

Example	Test aim	Question	Response choices
Exemplary test item 1	Knowledge of civic principles	‘Everyone has the right to education. Education shall be free [...] and compulsory.’ (The Universal Declaration of Human Rights 1948) Why is education considered a human right?	<ol style="list-style-type: none"> 1. Because children enjoy going to school and spending time with their friends. 2. Because education provides jobs for lots of teachers. 3. Because children can be in school while their parents are working. 4. Because education develops the skills people need to participate in their communities.
Exemplary test item 2	Reasoning and applying civic society and systems	‘Many people in noisy workplaces in <Exland> have had their hearing damaged by the noise.’ What is the most reasonable action the government could take to deal with the problem of noisy workplaces?	<ol style="list-style-type: none"> 1. Immediately close down all noisy workplaces. 2. Give money to the workers to help them find jobs in quieter workplaces. 3. Introduce laws stating that employers must protect workers from noise. 4. Arrest all owners of noisy workplaces.

Source: (Köhler et al. 2018: 306ff)

Students' social background is a categorical variable describing the highest parental ISCED level of education ranging from 1 (parents did not complete lower secondary education) to 5 (at least one parent completed tertiary education). The binary variable for students' immigration background takes the value 1 when either the student or both parents were born abroad. Gender is a binary variable assigning value 1 to boys and 2 to girls. Appendix 1 includes descriptive statistics on all individual level independent variables by country.

The ICCS 2016 National Contexts Questionnaire (Köhler et al. 2018) contains information on a wide variety of education system features provided by 'National Research Coordinators'. The data include information on the structure of the education system, education policy, and civic and citizenship education, as well as teacher qualifications for civic and citizenship education. To measure the 'culture of classroom discussion of current societal issues', this study applies the percentage of students by country that report frequent discussions of current societal and political issues in the classroom, aggregated from the ICCS 2016 student questionnaire. Appendix 2 includes the national context variable relevant for our analyses.

The first analytical step is a sequence of linear mixed-effects models (Laird & Ware 1982; Pinheiro & Bates 2018) to evaluate a) whether individuals civic knowledge achievement systematically varies across countries (model 2 random intercept), b) how individuals' socio-economic background affects their civic knowledge achievement (model 3: individual level fixed effects) and c) whether the degree of social inequality of civic knowledge achievement varies across countries (model 4: random slope model). In a next analytical step cross-level interactions of education system conditions and students family background are subsequently added. This enables us to examine how education system conditions affect students from different social backgrounds (cp. Galston 2001). The marginal effects of education system conditions on civic knowledge of students from different ISCED family backgrounds show how education policy can reduce or reinforce social inequality of civic knowledge achievement.

RESULTS

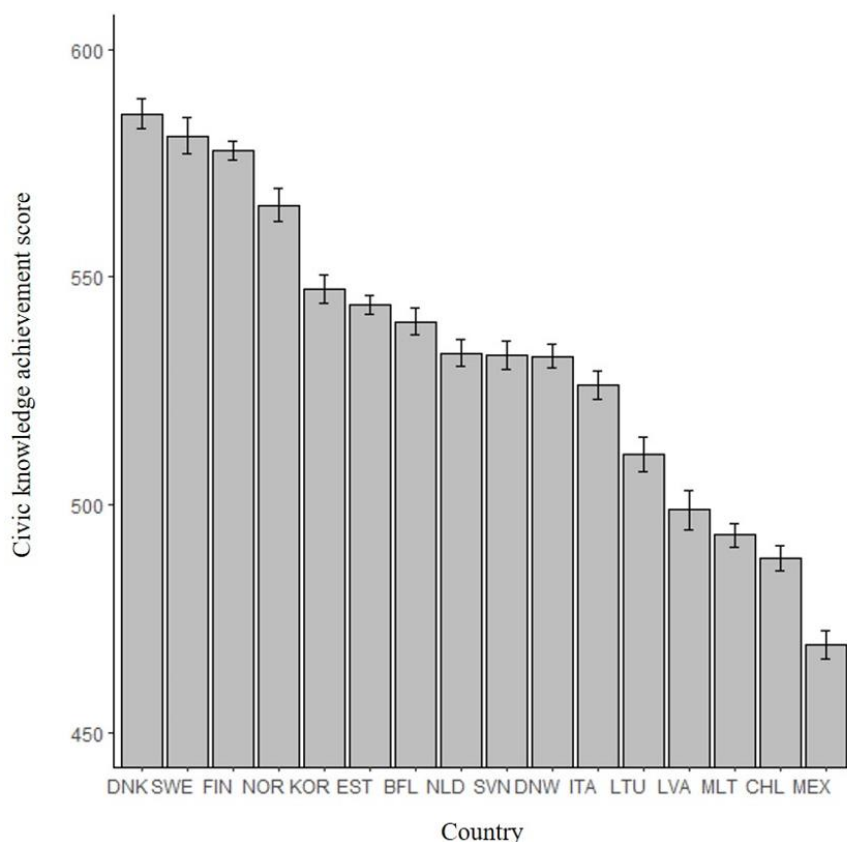
Table 2 includes the results of the basic multi-level analysis of civic knowledge. Model 1 includes the mean of civic knowledge and their standard deviation. Model 2 shows that individuals' civic knowledge systematically varies between national contexts.

Table 2: Hierarchical models without cross-level interactions

	Model 1 Empty model	Model 2 Random intercept model	Model 3 Added individual level effects	Model 4 Random slope model
Intercept	532.5 (0.41)	530.6 (1.24)	445.2 (2.14)	440.7 (2.17)***
Individual effects				
Parents' education			14.4 (0.37)***	15.4 (0.41) ***
Gender			23.9 (0.72)***	23.9 (0.72) ***
Immigration background			-36.6 (1.39)***	-35.7 (1.39)***"
Random effects				
Parents' education (random slope)				
Std.dev.				7.1

Corr				-0.3
Residuals std. deviation		79.6	75.9	75.6
School std. deviation		0.04	0.03	0.03
Country std. deviation		55.02	48.6	47.51
<i>N</i>		55201	51331	51331
<i>Number of countries</i>		16	16	16
Number of schools		2171	2169	2169
<i>-2 log likelihood'</i>				-297467.3
*** = Significant at least at the 0.01% level.				
Standard error in brackets				
AIC	661372.8	645218.5	595027.8	594952.6
LogLik	-330684.4	-322605.3	-297506.9	-297467.3
Variance components				
Individual level		68%		
School level		0%		
Country level		32%		
Method	Linear generalized least squares model	Linear mixed-effects model	Linear mixed-effects model	Linear mixed-effects model

Accordingly, OECD countries show very different overall levels of young peoples' civic knowledge (Figure 1). While 68% of the variation of civic knowledge can be explained by the individual level, 32% are due to the country level, and the school level seems to be barely relevant for variations of civic knowledge, what contradicts common learning frameworks (Maas & Lake 2015; Wang et al. 1990). National context conditions, such as the education system, thus indeed play an important role for the students' achievement of civic knowledge (Carpini & Keeter 1996). The Scandinavian countries (Denmark, Sweden, Finland and Norway) lead the ranking, showing the highest levels of civic knowledge among youth, while Mexico shows the lowest levels within the OECD sample. The strong difference between the three Baltic States strikes: Estonia takes a substantially higher rank than Lithuania and Latvia.

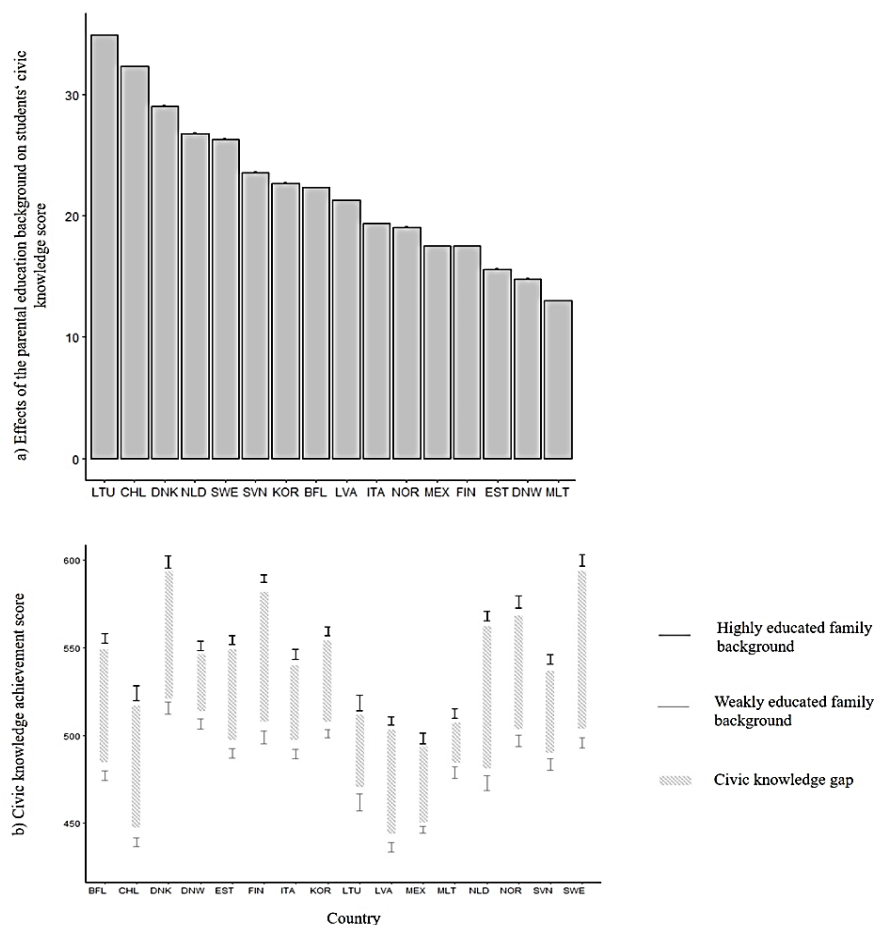
Figure 1: Average levels of civic knowledge (and the 95% confidence intervals) by country

Notes: The mean (and its standard deviation) of the civic knowledge score (PVICIV) is calculated for each country (in this GLS model, the school level is not included since it has been shown to be not relevant for the variation of civic knowledge).

Model 3 includes individual level fixed effects. Civic knowledge is positively affected by the students' social background (highest educational background of parents), by their gender – girls have higher civic knowledge than boys, and negatively affected by their immigration backgrounds – students with an immigration background have lower civic knowledge than their peers without an immigration background in the close family. Model 4, the random slope model, confirms that the effect of students' family background (parental education status) on civic knowledge varies across countries. While social inequality of civic knowledge achievement is substantial in all 16 education systems, the degree to which the achievement of civic knowledge depends on a teenagers' family background – the width of knowledge gap – substantially differs across countries (Figure 2a). In other words, across the OECD world, teenaged students from less educated family backgrounds are disadvantaged in their access to civic knowledge achievement than their peers from well-educated families, but the knowledge gap between students from different social backgrounds is significantly wider in some than in other education systems. The impact of parental education on students' civic knowledge is highest in Lithuania and Chile (see also Cabalin 2012). Moreover, while social inequality of civic knowledge is almost equally strong in Chile and Denmark, the relatively strong inequality in Denmark, appears on a much higher overall level of civic knowledge than in Chile (Figure 2b). Students from the same socio-economic background achieve very different degrees of civic knowledge in

different countries. Danish students from weakly educated family backgrounds have almost the same level of civic knowledge as students from highly educated families in Chile. Denmark and North-Rhine Westphalia (Germany) are the two countries with the highest civic knowledge achievement scores of students from weakly educated family backgrounds. These data underline that macro-societal conditions are responsible for accessibility of civic knowledge for students from all backgrounds – from the socially disadvantaged as well as from the socially well-positioned parts of society.

Figure 2: Social inequities of civic knowledge achievement (all estimates are displayed with a 95% confidence interval)



Notes: Figure 2a displays the impact of parental education on students' civic knowledge achievement (beta coefficient of linear generalized least square models by country) controlled for gender and migration status. Figure 2b displays the average civic knowledge separately for students from weakly and highly educated family backgrounds by country. Due to its ignorable variance component, the school level is neglected for both descriptive macro-societal indicators.

The further analyses confirm some of our hypotheses on macro education system conditions to be relevant for civic knowledge achievement of students from all backgrounds. The results however also underline, that the association between some education system conditions and civic knowledge achievement depends on students' social backgrounds indicating that education policy can reproduce or impede inequality. Table 3 displays the marginal effects of the education system conditions on civic knowledge of students from different family backgrounds.

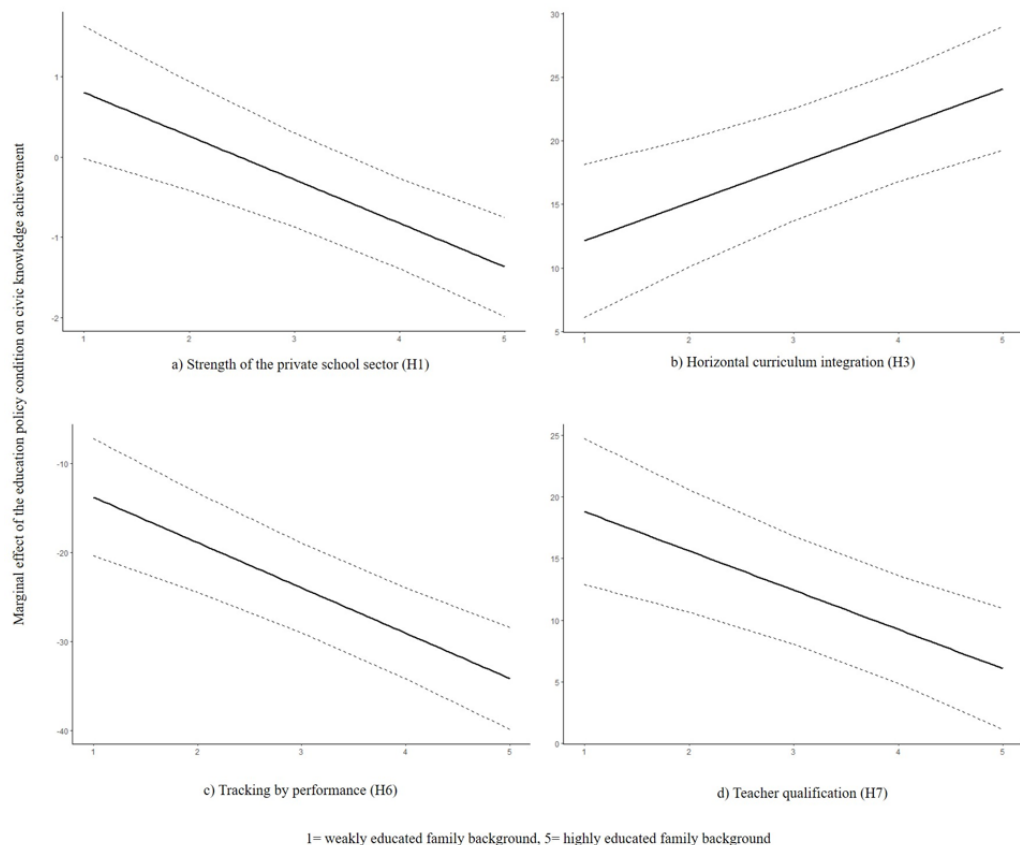
Table 3: Marginal effects of education system conditions (columns) on civic knowledge achievement of students from different family backgrounds (rows)*

Family background (parents' highest education)	Strengths of the private school sector	Weekly in- struction time	Horizontal curriculum integration	Curriculum variety	Culture of political dis- cussion in the class- rooms	Tracking by perform- ance	Teacher qualification
	<i>Supports H1</i>	<i>Rejects H2</i>	<i>Supports H3</i>	<i>Rejects H4</i>	<i>Supports H5</i>	<i>Supports H6</i>	<i>Supports H7</i>
First stage of tertiary education (highest)	-1.4 (0.3)	-13.4(3.0)	24.1(2.5)	0.6(0.3)	283.8(22.0)	-34.1(2.9)	6.1(2.5)
Post-secondary non- tertiary education	-0.8(0.3)	-13.4(2.6)	21.1(2.2)	0.5(0.3)	259.8(19.9)	-29.0(2.6)	9.3(2.2)
Upper secondary education	-0.3 (0.3)	-13.4(2.6)	18.1(2.2)	0.3(0.3)	235.8(20.8)	-24.0(2.6)	12.4(2.2)
Lower secondary education or second stage of basic educa- tion	0.3 (0.3)	-13.4(2.9)	15.1(2.6)	0.2(0.3)	211.8(24.5)	-18.9(2.9)	15.6(2.5)
Did not complete lower secondary edu- cation or second stage of basic educa- tion (lowest)	0.8 (0.4)	-13.4(3.3)	12.1(3.1)	0.1(0.4)	187.8(30.0)	-13.8(3.4)	18.8(3.0)

*Standard error in parenthesis, significant ($p < .5$) effects are bold. Effect sizes are not standardized since the analytic design does not allow to compare effect sizes across these models.

Hypothesis 1 can be partly confirmed since countries with strong private school sectors show lower levels of civic knowledge among students from well-educated families only (Figure 3a). In contradiction to *hypothesis 2*, countries with an increased weekly instruction time of civic and citizenship education, show lower degrees of civic knowledge achievement among students from all social backgrounds. As predicted in *hypothesis 3*, education systems with a horizontal curriculum integration of civic issues show higher levels of civic knowledge among students from all social backgrounds. However, youth from highly educated family backgrounds seem to benefit more strongly from the horizontal integration than their peers from less advantaged family backgrounds (Figure 3b). *Hypothesis 4* is partly confirmed, as curriculum variety is associated with higher levels of civic knowledge achievement, but again only for students from very highly educated family backgrounds (Figure 3c). In support of *hypothesis 5*, a strong culture of discussion in the classrooms is associated with higher civic knowledge outcomes for all students. In line with *hypothesis 6*, education systems that track students by performance, show lower degrees of civic knowledge achievement among students from all social backgrounds, but the negative effect is significantly stronger for students from highly educated families (Figure 3d). Finally, *hypothesis 7* is supported since higher requirements for teacher qualification in the countries are positively associated with civic knowledge achievement among all students but have stronger impacts on students from less educated family backgrounds (Figure 3e). Requiring a post-graduate degree for secondary education teachers is thus an effective means to reduce social inequality of civic knowledge by harmonizing the achievement scores from different social backgrounds and at the same time elevate civic knowledge for all.

Figure 3: Varying effects of the education policy conditions on students' civic knowledge achievement depending on their family backgrounds (and 95% confidence intervals)



CONCLUSION

High levels of civic knowledge in society are of great interest for the stability of democracy. This is especially vivid in times when people are at the mercy of unverified social media messages and at the edge of a renaissance of authoritarian ideas and movements that have the potential to dismantle democratic principles and institutions (Ernst, Engesser, Büchel, Blassnig & Esser 2017; Harms, Wood, Landay, Lester & Vogelgesang Lester 2018; Kakkar & Sivanathan 2017; Lazer et al. 2018; Morgan & Shanahan 2017; Norris 2017; Weingarten, Snyder & Allen 2018). By the means of a cross-national comparative design, this study therefore explores how education policy can contribute to high and equally distributed levels of civic knowledge among youth?

Both, the overall levels of civic knowledge among students as well as the degrees of social inequity of civic knowledge highly differ across the OECD member countries. Several education system conditions are positively associated civic knowledge achievement of young people from all backgrounds: requiring a graduate degree for teaching in secondary education, horizontal curriculum integration of civic issues, and a macro-societal culture of political debate in the classrooms. By contrast, tracking systems in secondary education are negatively associated with the civic knowledge of students from all backgrounds.

However, some policy conditions have varying impacts on students from different social backgrounds and therefore potentially reduce or enforce social inequality of civic knowledge achievement. For example, horizontal curriculum integration or curriculum variety, more strongly (or only) benefits students from highly educated family backgrounds. Despite its potentially positive impact on some students, these policies seemingly rather increase inequality structures. Why these policies are less beneficial for students from weaker socio-economic backgrounds needs to be further explored. On the other hand side, some policies seem to be specifically detrimental for civic knowledge achievement of students from highly educated family backgrounds: a strong private school sector and tracking by performance. Both policy conditions – private school sector and tracking by performance – pertain to aspects of classroom diversity and the integrative character of schools, indicating that a lack of diversity potentially weakens civic learning. The exact mechanisms of how classroom diversity is related to civic learning outcomes therefore needs further scholarly attention. The only means that explicitly reduces social inequality by leveraging the overall levels of civic knowledge is the requirement of a graduate degree for teaching secondary education. Requiring a graduate degree for teachers is positively associated with the civic capacities of all students but seems to be more beneficiary for students from less educated family backgrounds.

This study faces several limitations: The low number of 16 education systems included in this macro-comparative study reduces the generalizability of the results. While the ICCS is a unique source for identifying and comparing civic knowledge and competences around the globe, many highly developed and industrialized countries have not participated. Due to the reduced geographical scope of this study, the results need to be used carefully, when evaluating the situation in further countries, especially non-OECD countries. Second, while all our education system features are macro-societal constructs that need to be measured on the country level, the mechanisms of several of these variables – especially private schools vs public schools, classroom discussions, and diversity in the classroom – need to be more deeply analyzed through classroom level analyses to avoid ecological fallacies. This study can be used on the policy level to provide the macro-systemic context that nurtures civic knowledge achievement, it does however not make propositions on how to promote civic knowledge on the school and classroom level.

The question of how societies can provide their people with strong civic knowledge, not only to enable them for active and informed political participation but also as a prevention against extremist and anti-democratic movements is of great centrality (Schlicht-Schmälzle et al. 2021). In recent years, international comparative studies on educational outcomes, such as PISA, PIACC and TIMSS, have drawn an enormous public attention to a small set of academic outcomes such as reading, mathematics, science, or professional skills that are identified as important labor market supply factors. This narrow focus also influenced the public discourse and policy agenda on education and oversimplified the ideal of education to merely economic purposes (Casey 2004; Fuchs 2003; Rutkowski 2007). Many studies have analyzed how the education system context affects academic achievements of young people (Dronkers & Robert 2003; Freitag & Schlicht 2009; Levels, Kraaykamp & Dronkers 2008; Pfeffer 2008; Schlicht-Schmälzle & Möller 2012; Schlicht-Schmälzle, Stadelmann-Steffen & Freitag 2010; Schlicht-Schmälzle, Teltemann & Windzio 2011; Schmidt et al. 2015; Schuetz, Luedemann, West & Woessmann 2013; Schuetz, Ursprung & Woessmann 2005; Schütz, G., Lüdemann, E., Woessmann, L. & West 2010). The performance of education systems in developing civic knowledge in society however has been overwhelmingly ignored. This study seeks to reverse this trend by broadening the perspective on the outcomes of education. The results indicate that policymakers can foster civic knowledge achievement by investing in teacher education, strengthening political debate in the classroom, horizontal curriculum integration of civic issues, and by increasing diversity in classrooms.

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7. APPENDIX

Appendix 1: Indicators of the education system conditions

Private school sector (H1)	What are the approximate percentages of 'private/independent' schools that provide education at the ISCED 2 level in your country? (This is a school managed directly or indirectly by a non-government) organization; for example, a church, trade union, business, or other private institution.)	ICCS 2016 National Contexts Survey	XA3G06B
Instruction time (H2)	Is the amount of instruction time specified in the school curriculum that should be devoted to civic and citizenship education (taught as a separate subject and/or as part of subjects related to human and social sciences) at the target grade more than 2 hours?	ICCS 2016 National Contexts Survey	Combination of XA3G18AT & XA3G18BT
Integration into other subjects (H3)	Civic and citizenship education in the target grade is taught as a separate subject but also integrated into all subjects taught at school	ICCS 2016 National Contexts Survey	XA3G14A & XA3G14C
Content variety defined in national curricula (H4)	Number of topics and learning goals specified in curriculum	ICCS 2016 National Contexts Survey	XA3G16A- XA3G16L & XA3G17A- XA3G17K
Culture of discussion in the classroom (H5)	Percentage of students that claim: Students ' <u>often</u> ' bring up current political events for discussion in class	ICCS 2016 Student Question-naire	IS3G17C
Tracking system (H6)	Are there differences between different study programs at this educational level?	ICCS 2016 National Contexts Survey	XA3G13BB
Teacher qualification (H7)	What are the current formal requirements, if any, for being a teacher at the target grade? (Post-degree diploma, certificate or award)	ICCS 2016 National Contexts Survey	XA3G21D

Appendix 2: Education system variables by country

Country	Private school sector (%)	Instruction time	Integration into other subjects	Content variety defined in national curricula (number of content issues)	Culture of discussion in the classroom (%)	Tracking system	Teacher qualification
	H1	H2	H3	H4	H5	H6	H7
BFL	14	0	0	20	0.07	1	1
CHL	11	0	0	9	0.12	0	0
DNK	10	0	1	11	0.18	0	0
DNW	6	1	1	17	0.26	1	1
EST	5	0	0	16	0.08	0	0
FIN	4	0	1	0*	0.09	0	0
ITA	4	0	0	20	0.14	0	1
KOR	9	1	0	18	0.06	0	0
LTU	3	0	0	21	0.06	0	0
LVA	NA	0	0	8	0.10	0	1
MEX	7	1	1	21	0.13	1	0
MLT	12	0	0	19	0.11	0	1
NLD	13	0	0	13	0.04	1	1
NOR	2	1	1	21	0.15	0	1
SVN	1	0	1	19	0.06	0	1
SWE	8	0	0	19	0.24	0	1

Measures see appendix 1

*The national context survey for Finland indicates 'no' for all topics and learning goals specified in the national curriculum. Since the meaning of this measure in Finland cannot be finally evaluated, Finland is excluded from the analyses of hypothesis 4.

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