CHAPTER 3:

Students' civic knowledge

Chapter highlights

Civic knowledge can be described across four levels of increasing complexity.

- Students working at Level D demonstrate familiarity with concrete, explicit content and examples relating to the basic features of democracy.
- Students working at Level C engage with the fundamental principles and broad concepts that underpin civics and citizenship.
- Students working at Level B demonstrate some specific knowledge and understanding of the most pervasive civic and citizenship institutions, systems, and concepts.
- Students working at Level A demonstrate a holistic knowledge and understanding of civic and citizenship concepts and demonstrate some critical perspective. (Figure 3.1)

Civic knowledge varied more within countries than across countries.

- The median range between the lowest five percent and the highest 95 percent of student civic knowledge scores within countries spanned more than three levels on the ICCS civic knowledge scale.
- The range of average civic knowledge scores across countries spanned two-and-a-half levels on the ICCS civic knowledge scale. (Table 3.9)

Civic knowledge has increased since 2009.

- Across the 18 countries that participated in ICCS 2009 and ICCS 2016, the proportion of students achieving at Level B and above on the civic knowledge scale increased from 61 percent to 67 percent. (Table 3.11)
- Eleven of these 18 countries recorded a statistically significant increase in average student civic knowledge. (Table 3.12)

Civic knowledge was associated with student gender.

- Female students demonstrated higher civic knowledge than male students.
- The average civic knowledge scores of female students was statistically significantly higher than that of male students in 19 of 21 countries.
- Across all countries, the difference in average civic knowledge scale scores between female and male students was equivalent to roughly one third of a level on the ICCS scale. (Table 3.13)

Socioeconomic status (SES), denoted by parental occupation, parental education, and number of books in the home, was significantly positively associated with student civic knowledge.

- In all countries, students in the high SES groups scored significantly higher than those in the lower SES groups on the civic knowledge scale. (Table 3.14)

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Immigrant background and language background were associated with student civic knowledge. (Table 3.15)

- In 14 of 21 countries, students from immigrant families had statistically significantly lower civic knowledge scores than students from non-immigrant families.
- In 17 of 21 countries, students who reported mainly speaking the language of the ICCS test at home had statistically significantly higher civic knowledge scale scores than those who reported speaking another language at home.

Introduction

ICCS regards civic knowledge as fundamental to effective civic participation. Within the context of ICCS, civic knowledge refers not only to familiarity with the civic and citizenship content described in the ICCS 2016 assessment framework but also to the ability to apply relevant cognitive processes to this content (Schulz, Ainley, Fraillon, Losito, & Agrusti, 2016). Civic knowledge is important in all four of the framework's content domains.

We begin this chapter by describing the civic knowledge assessment instrument and the proficiency scale derived from the ICCS civic knowledge test and data. We follow this account with a description and discussion of the international student test results in ICCS 2016. We also look at the differences over time between these results and students' performance in those countries that participated in both ICCS 2009 and ICCS 2016. We conclude the chapter with an analysis of the associations between students' civic knowledge and background variables relating to students' gender, age, socioeconomic status, and immigrant and language backgrounds.

The content of this chapter relates to ICCS Research Question 2, which focuses on:

- The extent to which students' civic knowledge varies among and within countries;
- The associations between civic knowledge and student background; and
- Changes in students' civic knowledge between 2009 and 2016.

Assessing student knowledge

ICCS 2016 is the fourth IEA international study to include measurement of civic knowledge. The IEA Civic Education Study of 1971 included a 47-item multiple-choice test for 14-year-olds in nine countries (Torney, Oppenheim, & Farnen, 1975). The IEA CIVED survey, conducted in 1999, included a 38-item multiple-choice test for 14-year-old students in 28 countries (Torney-Purta, Lehmann, Oswald, & Schulz, 2001) and a 42-item test for 17- to 18-year-olds in 16 countries (Amadeo, Torney-Purta, Lehmann, Husfeldt, & Nikolova, 2002).

ICCS 2009 included a pool of 80 test items comprising 74 multiple-choice and six constructed-response items. Items were first allocated to clusters of between 10 and 17 items each. Each cluster was allocated to three test booklets but was placed so that it appeared once in each of the first, second, and third positions across the booklets. Each student completed one test booklet. ICCS 2016 also used this type of test design (balanced incomplete block design).

The ICCS 2016 civic knowledge test contained 88 items, but one item showed insufficient measurement properties to warrant inclusion in the final set of items for analysis. The remaining 87 items are the focus of this report. A small number of items were decontextualized questions of knowledge or understanding, but the majority of the items were presented in units. Each unit provided some brief contextual stimulus (an image or some text) that was followed by items relating to the context established by that stimulus. Seventy-eight items were multiple-choice and nine items were constructed-response.

We used data collected in ICCS 2009 to establish the ICCS civic knowledge proficiency scale. In order to report the student achievement data collected during ICCS 2016 on the existing ICCS proficiency scale, we included a set of 42 ICCS 2009 items that had not been made publicly available in the ICCS 2016 test. The remaining 45 items used in the ICCS 2016 analysis and reporting were newly developed for use in the 2016 test.

The ICCS test of civic knowledge covered the four content and two cognitive domains described in the ICCS assessment framework (Schulz et al., 2016). Each test item referenced one content domain and one cognitive domain. The assessment instrument thus covered content from all domains and reflected the different applications of that content. The proportions of items across the four content domains were:

- Domain 1 (civic society and systems): 40 percent
- Domain 2 (civic principles): 30 percent
- Domain 3 (civic participation): 20 percent
- Domain 4 (civic identities): 10 percent.

The proportions across the two cognitive domains were:

- Domain 1 (knowing): 25 percent
- Domain 2 (reasoning and applying): 75 percent.

Using the same approach to that employed with the 2009 test of civic knowledge, we grouped the test items into eight clusters of 11 items each. We then made sure that the clusters were balanced for reading load, item format, and coverage of assessment framework content. Each student completed one test booklet consisting of three clusters. In total, there were eight different test booklets, and each cluster appeared in three different booklets—once in each of the first, second, and third positions. This balanced rotation of items meant that the assessment instrument included a larger amount of assessment content than could be completed by any individual student. We adopted this approach to ensure broad coverage of the content of the ICCS assessment framework.

The ICCS civic knowledge reporting scale was developed in 2009, and we used the Rasch model (Rasch, 1960) to accomplish this work. The scale has a mean (the average score of countries participating in ICCS 2009) of 500 and a standard deviation of 100 for equally weighted national samples. In order to equate the 2016 data to the ICCS reporting scale, we used combined data from ICCS 2009 and 2016 and then applied the Rasch model. We used plausible value methodology with full conditioning to derive summary student achievement statistics. By applying this approach we were able to estimate the uncertainty inherent in the measurement process (von Davier, Gonzalez, & Mislevy, 2009). Descriptions of the scaling and equating procedures for test items will appear in the ICCS 2016 technical report (Schulz, Carstens, Losito, & Fraillon, forthcoming).

Developing the described scale of students' civic knowledge

Establishing the scale in ICCS 2009

When we established the ICCS described scale of civic knowledge in 2009, we considered the contents of test items together with their scaled difficulties derived from the data collected during the ICCS 2009 survey. We described the different civic and citizenship content and cognitive processes for each item and then ordered the items (from lowest to highest) according to their scaled difficulties. Analysis of the item content and relative difficulty allowed us to identify common themes of content and processes that we could use to characterize the ranges (levels) of the scale.

This process was an iterative one in which we varied the positions of the boundaries and reviewed the conceptual content at each of the resulting tentative levels until each of the eventual three levels showed not only clearly distinctive characteristics but also a meaningful progression from low to high achievement across all of the levels. The level boundaries were established at 395, 479, and 563 scale points. After completing this process, we synthesized the content of the item descriptors within the levels so as to describe the key content and process characteristics at each level of civic knowledge. We left the ICCS 2009 highest level (Level 3) unbounded at the top so that any score above 563 could be reported as falling within Level 3. We reported student scores under 395 scale points as 'Below Level 1'.

The proficiency levels represent a hierarchy of civic knowledge in terms of increasing sophistication of content knowledge and cognitive process. Increasing levels on the scale typically represent increasingly complex content and cognitive processes as they are demonstrated through student performance. However, it is important to note that all levels of this scale can include content related to both cognitive domains (*knowing* as well as *reasoning and applying*), and that the progression is not simply an extension from simple content knowledge at the bottom to reasoning and application at the top. The sophistication of demonstrable achievement assessed in any given item is a result of the interaction between the civic and citizenship content and the cognitive process applied to that content.

The scale broadly reflects hypothesized development from the concrete, familiar, and more mechanistic elements of civics and citizenship through to the wider policy and institutional processes that determine the shape of our civic communities. The scale is hierarchical in the sense that civic knowledge becomes more sophisticated as student achievement progresses up the scale. Although the scale does not describe a necessary sequence of learning, it does postulate that learning growth typically follows the sequence described by the scale. We constructed the scale according to the assumption that any given student can demonstrate achievement of the scale contents below his or her measured level of achievement.

Extending the scale in ICCS 2016

When planning instrument development for ICCS 2016, we decided to develop a larger number of items that were less difficult than those used in ICCS 2009. Our aim here was to obtain a more accurate measurement of the civic knowledge of students achieving at the lower end of the scale. Our approach was successful because it enabled more precise measures of students whose test scores were below 395 scale points as well as a description of student achievement in this region of the scale. The ICCS 2016 proficiency scale therefore includes a fourth level that spans achievement ranging from 311 to 394 scale points.

The labels assigned to the ICCS 2016 levels and future cycles of ICCS replace the labels used in ICCS 2009 (which were Level 3 to Below Level 1). The highest unbounded 2016 level (Level 3 in ICCS 2009) is now Level A, and the newly established bounded lower level is Level D. The position of the boundaries between Levels A and B (formerly Levels 3 and 2) and Levels B and C (formerly Levels 2 and 1) remain unchanged from ICCS 2009. The unbounded scale range beneath the lower boundary of Level D is now called "Below Level D."

The ICCS civic knowledge proficiency scale (Figure 3.1) includes descriptions of the scale's contents and the nature of the progression across the proficiency levels. For each proficiency level, examples of items illustrate the types of learning content and cognitive processes that students employ when responding to items from that level.

Students who achieve proficiency at Level D demonstrate familiarity with concrete, explicit content and examples relating to the basic features of democracy. They identify the intended outcomes of simple examples of rules and laws and recognize the explicit function of key civic institutions. They also recognize examples of respect for the rights of others, and they may see these rights as motivation for citizenship engagement. The key factors differentiating students' achievement at Level D from those at higher levels concern (a) students' demonstrated breadth of knowledge of the fundamental aspects of democracy and democratic institutions, and (b) students' capacity to engage with abstract concepts that extend beyond concrete, explicit examples of democratic principles and citizenship behaviors.

Students who achieve proficiency at Level C understand the fundamental principles and broad concepts that underpin civics and citizenship. Students operating at this level are familiar with some of the "big ideas" of civics and citizenship; they are generally able to accurately determine what

Figure 3.1: ICCS civic knowledge scale with examples

Level A: 563 score points and above

Students working at Level A make connections between the processes of social and political organization and influence, and the legal and institutional mechanisms used to control them. They generate accurate hypotheses on the benefits, motivations, and likely outcomes of institutional policies and citizens' actions. They integrate, justify, and evaluate given positions, policies, or laws based on the principles that underpin them. Students demonstrate familiarity with broad international economic forces and the strategic nature of active participation.

Students working at Level A, for example:

- Identify likely strategic aims of a program of ethical consumption
- Suggest mechanisms by which open public debate and communication can benefit society
- Suggest related benefits of widespread intercultural understanding in society
- Justify the separation of powers between the judiciary and the parliament
- Relate the principle of fair and equal governance to laws regarding disclosure of financial donations to political parties
- Evaluate a policy with respect to equality and inclusiveness
- Identify a reason for having limited parliamentary terms
- Identify the main feature of free market economies and multinational company ownership.

Level B: 479 to 562 score points

Students working at Level B demonstrate familiarity with the broad concept of representative democracy as a political system. They recognize ways in which institutions and laws can be used to protect and promote a society's values and principles. They recognize the potential role of citizens as voters in a representative democracy, and they generalize principles and values from specific examples of policies and laws (including human rights). Students demonstrate understanding of the influence that active citizenship can have beyond the local community. They generalize the role of the individual active citizen to broader civic societies and the world.

Students working at Level B, for example:

- Relate the independence of a statutory authority to maintenance of public trust in decisions made by the authority
- Generalize the economic risk to developing countries of globalization from a local context
- Identify that informed citizens are better able to make decisions when voting in elections
- Relate the responsibility to vote with the representativeness of a democracy
- Describe the main role of a legislature/parliament
- Define the main role of a constitution
- Recognize the relationship between the government and the military in a democracy
- Recognize the danger of government-controlled media
- Relate the responsibility for environmental protection to the actions of individual people.

Level C: 395 to 478 score points

Students working at Level C demonstrate familiarity with equality, social cohesion, and freedom as principles of democracy. They relate these broad principles to everyday examples of situations in which protection of or challenge to the principles are demonstrated. Students also demonstrate familiarity with fundamental concepts of the individual as an active citizen: they recognize the necessity for individuals to obey the law; they relate individual courses of action to likely outcomes; and they relate personal characteristics to the capacity of an individual to effect civic change.

Students working at Level C, for example:

- Relate freedom of the press to the accuracy of information provided to the public by the media
- Justify voluntary voting in the context of freedom of political expression
- Identify that democratic leaders should be aware of the needs of the people over whom they have authority
- Recognize that the UN Universal Declaration of Human Rights is intended to apply to all people
- Generalize about the value of the internet as a communicative tool in civic participation
- Recognize the value of being an informed voter
- Recognize that governments have a responsibility to all citizens
- Recognize the civic motivation behind an act of ethical consumerism.

Level D: 311 to 394 score points

Students working at Level D recognize explicit examples representing basic features of democracy. They identify the intended outcomes of simple examples of rules and laws and recognize the motivations of people engaged in activities that contribute to the common good.

Students working at Level D, for example:

- Recognize national defense is a key role of the military
- Relate the right to medical help to the motivation to work for an aid organization
- Recognize the relationship between the secret ballot and freedom of voter choice
- Recognize that volunteers provide a contribution to communities
- Recognize that all people are equal before the law.

is fair or unfair in familiar contexts and to demonstrate some knowledge of the basic operations of civic and civil institutions. Students working at Level C also typically demonstrate awareness of citizens' capacity to exert influence in their own local context. The key factors differentiating students' achievement at Level C from that at higher levels relate to (a) the degree of specificity of students' knowledge, and (b) the amount of mechanistic rather than relational thinking that students express in regard to the operations of civic and civil institutions.

Students working at Level B typically demonstrate some specific knowledge and understanding of the most pervasive civic and citizenship institutions, systems, and concepts. These students generally understand the interconnectedness between civic and civil institutions, and the processes and systems through which they operate, rather than only being able to identify the most obvious characteristics of these institutions. Students at Level B are also able to demonstrate understanding of the connection between principles or key ideas and how these operate in policy or practice in everyday familiar contexts. They can relate some formal civic processes to their everyday experience and are aware that the potential sphere of influence (and responsibility) exerted by active citizens extends beyond their own local context. One key factor differentiating Level B from Level C is the degree to which students are able to use knowledge and understanding to evaluate and justify policies and practices.

Students working at Level A demonstrate a more integrated rather than a segmented knowledge and understanding of civic and citizenship concepts. They make evaluative judgments about the merits of policies and behaviors from given perspectives, are able to justify positions or propositions, and hypothesize outcomes based on their understanding of civic and citizenship systems and practices. Students working at Level A demonstrate understanding of active citizenship practice as a means to an end rather than as a more "automatic response" in a given context. These students are thus able to evaluate active citizenship behaviors in light of their desired outcomes.

Sample ICCS test items

To provide a clearer understanding of the nature of the ICCS 2016 test and civic knowledge scale, we present eight sample items in this chapter. These items not only indicate the types and range of questions that the ICCS international test required students to answer but also illustrate the responses corresponding to the proficiency levels of the ICCS civic knowledge scale. The data for each sample item in the analysis (including calculation of the ICCS average) are drawn only from those countries that met the ICCS 2016 sample participation, test administration, and coding requirements for that item.

Each sample item is presented with the national average percentages of students who answered the item correctly. The correct response to each item is indicated with an asterisk (*) at the end of the relevant multiple-choice option. All multiple-choice items in ICCS were coded as either no credit (zero points) for an incorrect response or full credit (one point) for the correct response. The set of sample items includes one constructed-response item (sample item 7). This item is presented together with a summary scoring guide and the percentages of students who achieved full credit (Code 2) and partial credit (Code 1) on the item.

Sample item 1: Below Level D

Sample item 1 (Table 3.1), located *below* Level D on the ICCS civic knowledge scale, was the easiest item in the ICCS 2016 test. It required students to recognize the reason why education is considered a human right. While students can find it difficult to appreciate the definitional nuances associated with human rights, they were presented in this case with a concrete and familiar example (education) and required to recognize an associated justification. These two factors, taken together, contributed to the relative ease with which students could answer the question. Sample item 1 relates to the *equity* sub-domain of content domain 2 (civic principles) and to the *illustrate with*

Table 3.1: Sample item 1 with percentage correct by country

Everyone has the right to education. Education shall be free… and compulsory.
The Universal Declaration of Human Rights

ICCS civic knowledge scale: Below Level D

Why is education considered a human right?

- Because children enjoy going to school and spending time with their friends.
- Because education provides jobs for lots of teachers.
- Because children can be in school while their parents are working.
- Because education develops the skills people need to participate in their communities.*

Country	Percentage correct response	
Belgium (Flemish)	95	(0.8)
Bulgaria	88	(1.6)
Chile	86	(1.1)
Chinese Taipei	95	(0.6)
Colombia	92	(0.8)
Croatia	97	(0.7)
Denmark†	96	(0.5)
Dominican Republic	68	(1.8)
Estonia[1]	98	(0.4)
Finland	97	(0.5)
Italy	96	(0.6)
Latvia[1]	91	(1.3)
Lithuania	97	(0.5)
Malta	87	(0.9)
Mexico	88	(1.1)
Netherlands†	96	(1.0)
Norway (9)[1]	95	(0.5)
Peru	91	(0.8)
Russian Federation	95	(0.9)
Slovenia	94	(0.8)
Sweden[1]	95	(0.6)
ICCS 2016 average	**92**	**(0.2)**
Countries not meeting sample participation requirements		
Hong Kong SAR	84	(1.8)
Korea, Republic of[2]	90	(1.1)
Benchmarking participant not meeting sample participation requirements		
North Rhine-Westphalia (Germany)[1]	–	–

Notes:
* Correct response.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.
- No comparable data available.

examples process of cognitive domain 1 (knowing) of the ICCS assessment framework. On average across all countries, 92 percent of students achieved full credit on this item. The percentages across countries ranged from 68 to 98 percent.

Sample items 2 and 3: Level D

Sample items 2 and 3 are located in Level D on the ICCS civic knowledge scale. Sample item 2 (Table 3.2) required students to recognize, through an example, the principle that the law applies equally to all people. This principle is a fundamental aspect of the rule of law and is a foundational aspect for further learning and higher-order thinking in the civic and citizenship domain. Sample item 2 relates to the *rule of law* sub-domain of content domain 2 (civic principles) and to the *illustrate with examples* process of cognitive domain 1 (knowing). On average across all countries, 89 percent of students, on average, achieved full credit on this item. The percentages across countries ranged from 64 to 97 percent.

Table 3.2: Sample item 2 with percentage correct by country

A government minister in <Exland> has been caught speeding in his car. He received a fine for breaking the road laws.

ICCS civic knowledge scale: Level D

Why does the minister have to pay the fine?

- Because ministers have enough money to pay the fines.
- The law treats everyone as equal.*
- Because he wants people to vote for him again.
- Because the police can arrest him if he fails to pay the fine.

Country	Percentage correct response
Belgium (Flemish)	95 (0.7)
Bulgaria	82 (1.6)
Chile	83 (0.8)
Chinese Taipei	91 (0.8)
Colombia	88 (1.0)
Croatia	95 (0.6)
Denmark†	96 (0.4)
Dominican Republic	64 (1.5)
Estonia[1]	95 (0.8)
Finland	97 (0.5)
Italy	96 (0.7)
Latvia[1]	88 (1.3)
Lithuania	92 (1.0)
Malta	90 (0.8)
Mexico	79 (1.1)
Netherlands†	93 (1.0)
Norway (9)[1]	93 (0.5)
Peru	85 (0.9)
Russian Federation	92 (1.0)
Slovenia	90 (1.0)
Sweden[1]	93 (0.7)
ICCS 2016 average	**89 (0.2)**
Countries not meeting sample participation requirements	
Hong Kong SAR	88 (1.4)
Korea, Republic of[2]	95 (0.8)
Benchmarking participant not meeting sample participation requirements	
North Rhine-Westphalia (Germany)	95 (1.2)

Notes:

* Correct response.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.

Sample item 3 (Table 3.3) required students to recognize the capacity of governments to use workplace laws as a means of protecting workers' wellbeing. Students evaluated the relative feasibility of a set of possible government interventions presented within the context of students' understanding of the role of government in democratic societies. The item relates to the *state institutions* sub-domain of content domain 1 (civic society and systems) and the *evaluate* process in cognitive domain 2 (reasoning and analyzing) of the ICCS assessment framework. The ability to evaluate alternative actions set within a familiar and explicit civic and citizenship context is a foundational aspect of civic knowledge. On average across all countries, 85 percent of students achieved full credit on this item. The percentages across countries ranged from 60 to 95 percent.

Table 3.3: Sample item 3 with percentage correct by country

Many people in noisy workplaces in <Exland> have had their hearing damaged by the noise.

ICCS civic knowledge scale: Level D

What is the most reasonable action the government could take to deal with the problem of noisy workplaces?

- Immediately close down all noisy workplaces
- Give money to the workers to help them find jobs in quieter workplaces
- Introduce laws stating that employers must protect workers from noise*
- Arrest all owners of noisy workplaces

Country	Percentage correct response
Belgium (Flemish)	87 (1.2)
Bulgaria	86 (1.6)
Chile	80 (1.1)
Chinese Taipei	91 (0.8)
Colombia	86 (1.1)
Croatia	91 (1.1)
Denmark†	88 (0.9)
Dominican Republic	60 (1.5)
Estonia[1]	90 (1.0)
Finland	95 (0.8)
Italy	80 (1.3)
Latvia[1]	91 (1.1)
Lithuania	88 (1.2)
Malta	81 (1.2)
Mexico	84 (1.1)
Netherlands†	87 (1.3)
Norway (9)[1]	92 (0.7)
Peru	60 (1.3)
Russian Federation	91 (0.8)
Slovenia	90 (1.0)
Sweden[1]	90 (1.4)
ICCS 2016 average	**85 (0.2)**
Countries not meeting sample participation requirements	
Hong Kong SAR	85 (1.6)
Korea, Republic of[2]	81 (1.4)
Benchmarking participant not meeting sample participation requirements	
North Rhine-Westphalia (Germany)[1]	93 (1.0)

Notes:
* Correct response.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
1 National Defined Population covers 90% to 95% of National Target Population.
2 Country surveyed target grade in the first half of the school year.

Sample item 4: Level C

Sample item 4 (Table 3.4) required students to associate the need for accuracy of information with journalists' independence from external control. Because the focus of the item is on the extent of freedom individuals have to collect and report information, the item relates to the *freedom* sub-domain of content domain 2 (principles) and the *generalize* process in cognitive domain 2 (reasoning and analyzing) of the ICCS assessment framework. Sample item 4 thus illustrates a broad familiarity with the concept of freedom. On average across all countries, 75 percent of students achieved full credit on this item. The percentages across countries ranged from 56 to 87 percent.

Table 3.4: Sample item 4 with percentage correct by country

ICCS civic knowledge scale: Level C

Why is it important that journalists are freely able to research and report the news?

- It builds trust in the country's government.
- It helps journalists to provide accurate information to the public.*
- It ensures that there are enough journalists to report all news events.
- It makes sure that no individual journalist is paid too much money for their work.

Country	Percentage correct response
Belgium (Flemish)	77 (1.3)
Bulgaria	78 (1.6)
Chile	66 (1.3)
Chinese Taipei	81 (1.2)
Colombia	66 (1.4)
Croatia	87 (1.0)
Denmark†	78 (1.1)
Dominican Republic	56 (1.3)
Estonia[1]	79 (1.5)
Finland	81 (1.5)
Italy	84 (1.1)
Latvia[1]	76 (1.5)
Lithuania	71 (1.4)
Malta	71 (1.3)
Mexico	61 (1.5)
Netherlands†	66 (1.6)
Norway (9)[1]	79 (1.0)
Peru	70 (1.4)
Russian Federation	81 (1.5)
Slovenia	82 (1.3)
Sweden[1]	77 (1.7)
ICCS 2016 average	**75 (0.3)**
Countries not meeting sample participation requirements	
Hong Kong SAR	76 (1.6)
Korea, Republic of[2]	78 (1.5)
Benchmarking participant not meeting sample participation requirements	
North Rhine-Westphalia (Germany)	79 (1.5)

Notes:
* Correct response.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
1 National Defined Population covers 90% to 95% of National Target Population.
2 Country surveyed target grade in the first half of the school year.

Sample item 5: Level B

Sample item 5 (Table 3.5) required students to recognize a justification for voting from an implicit democratic perspective. While achievement at the lower levels of the ICCS proficiency scale reflects explicit representations of democracy and democratic process, sample item 5 is an example of achievement at Level B because students needed to recognize and apply democratic principles to a decision-making context despite democracy not being explicitly mentioned in the item. The item relates to the *decision-making* sub-domain of content domain 3 (civic participation) and to the *illustrate with examples* process of cognitive domain 1 (knowing) of the ICCS assessment framework. On average across all countries, 59 percent of students achieved full credit on this item. The percentages across countries ranged from 21 to 82 percent.

Table 3.5: Sample item 5 with percentage correct by country

Members of a youth club want to choose a leader. One member offers to be the leader, but club members decide to vote to elect a leader.

ICCS civic knowledge scale: Level B

What is the **best** reason for the club to elect the leader by a vote rather than choosing a person who offers to be the leader?

- Voting enables people to hold a second vote if they disagree with the outcome.
- Voting is the fastest way to decide who should be the leader.
- Voting enables every member of the club to participate in choosing the leader.*
- Voting ensures that every member of the club will be happy with the choice of leader.

Country	Percentage correct response
Belgium (Flemish)	71 (2.0)
Bulgaria	58 (1.6)
Chile	50 (1.1)
Chinese Taipei	58 (1.3)
Colombia	35 (1.0)
Croatia	56 (1.8)
Denmark†	80 (1.2)
Dominican Republic	21 (1.3)
Estonia[1]	63 (1.7)
Finland	82 (1.3)
Italy	66 (1.4)
Latvia[1]	65 (1.7)
Lithuania	47 (1.6)
Malta	60 (1.5)
Mexico	30 (1.4)
Netherlands†	67 (2.0)
Norway (9)[1]	65 (1.3)
Peru	49 (1.4)
Russian Federation	68 (1.4)
Slovenia	71 (1.6)
Sweden[1]	68 (1.9)
ICCS 2016 average	**59 (0.3)**
Countries not meeting sample participation requirements	
Hong Kong SAR	56 (1.8)
Korea, Republic of[2]	54 (1.4)
Benchmarking participant not meeting sample participation requirements	
North Rhine-Westphalia (Germany)	66 (2.4)

Notes:
* Correct response.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
1 National Defined Population covers 90% to 95% of National Target Population.
2 Country surveyed target grade in the first half of the school year.

Sample items 6, 7, and 8: Levels C, B, and A

Sample items 6 and 7 (shown in Table 3.6) form a unit dealing with the concept of misuse of power. Sample item 6 (shown in the unshaded section of Table 3.6) provided students with an introduction to the concept of power misuse and then required them to recognize an example of that misuse. The item is an example of achievement at Level C on the ICCS proficiency scale because students needed to recognize an explicit example of misuse of power. Example item 6 relates to the *rule of law* sub-domain of content domain 2 (civic principles) and to the *illustrate with examples* process of cognitive domain 1 of the ICCS assessment framework. On average across all countries, 73 percent of students achieved full credit on this item. The percentages across countries ranged from 41 to 89 percent.

Sample item 7, a constructed-response item, appears again in Table 3.7, but this time with a summary of the scoring guide for the item. The ICCS civic knowledge test instrument included nine constructed-response items. Expert scorers in each country scored students' responses to these items. ICCS ensured that all scorers were trained to the international standards established for ICCS as part of the centralized international scorer training program that ICCS ran for experts responsible for scorer training and scoring within each country.[1] The scoring guide allowed for

1 Two different scorers independently scored about 100 booklets per country in order to assess the inter-rater agreement per booklet. The only data included in the analysis were those from constructed items with an inter-rater agreement of at least 60 percent.

Table 3.6: Sample items 6 (unshaded) and 7 (shaded) with percentage correct by country for sample item 6

Misuse of power is when a person who holds a position of authority uses their power unfairly or improperly.

ICCS civic knowledge scale: Level C

Which of the following examples best shows misuse of power?

- A political leader speaks out in the media against a proposed law.
- A political leader employs people only if they have donated money to her party.*
- A police officer arrests someone who has broken the law.
- A group of environmental activists organizes a protest outside the <parliament>.

In a democracy, what can be done to prevent political leaders misusing their power?
Write **two different** things that can be done.

1 _____

2 _____

Country	Percentage correct response
Belgium (Flemish)	77 (1.9)
Bulgaria	68 (2.3)
Chile	73 (1.3)
Chinese Taipei	78 (1.3)
Colombia	72 (1.5)
Croatia	81 (1.2)
Denmark†	84 (1.0)
Dominican Republic	41 (1.8)
Estonia[1]	81 (1.5)
Finland	89 (1.0)
Italy	68 (1.5)
Latvia[1]	72 (1.6)
Lithuania	76 (1.3)
Malta	67 (1.4)
Mexico	73 (1.5)
Netherlands†	82 (1.7)
Norway (9)[1]	78 (0.9)
Peru	51 (1.4)
Russian Federation	75 (1.4)
Slovenia	68 (1.6)
Sweden[1]	77 (1.2)
ICCS 2016 average	**73 (0.3)**
Countries not meeting sample participation requirements	
Hong Kong SAR	75 (1.9)
Korea, Republic of[2]	80 (1.4)
Benchmarking participant not meeting sample participation requirements	
North Rhine-Westphalia (Germany)	73 (1.9)

Notes:
* Correct response.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.

the allocation of 0 (no credit), 1 (partial credit), or 2 (full credit) for seven of the nine constructed-response items. Table 3.7 shows the percentages of students who achieved partial credit and full credit. The full credit response (two points) is located in Proficiency Level A of the ICCS civic knowledge scale, and the partial credit (one point) response category is located in Proficiency Level B of the scale.

Sample item 7 relates to the *legislatures/parliaments* sub-domain. It also relates to the concept of *power/authority* of the first content domain (civic society and systems) and to the *describe* process in the first cognitive domain (knowing) of the ICCS assessment framework. One of the advantages of including the constructed-response item format in some of the ICCS items was that it provided students with opportunity to demonstrate knowledge and understanding relating to multifaceted civic concepts.

Sample item 7 has eight different categories of response worthy of credit. Students who were able to generate responses meeting the standards in any two categories were awarded full credit (two score points) on this item, thus positioning their responses at Proficiency Level A on the ICCS civic knowledge scale. Students who could provide only one response deemed worthy of a credit

Table 3.7: Sample item 7 with summary scoring guide and percentage correct by country

In a democracy, what can be done to prevent political leaders misusing their power?

Write **two different** things that can be done.

1 _____

2 _____

Scoring Guide

Code 2
ICCS civic knowledge scale: Level A

Refers to methods/mechanisms from **two different categories** of the categories listed below.

1. Separation of powers/laws that limit what people in positions of authority can do/checks and balances on process.
2. Rule of law/laws enforced against political leaders.
3. Transparency (e.g. an independent press/freedom of the press/ freedom of information.
4. Freedom of speech/allowing criticism of the actions of political leaders.
5. The right to take political action (e.g. public protest, formation of pressure groups).
6. Elections (people can choose not to vote for a party that is seen misusing power).
7. Education for public.
8. Education for political leaders including providing advice (may include modelling by other leaders).

Code 1
ICCS civic knowledge scale: Level A

Refers only to methods/mechanisms from **one** of the listed categories (including responses **in which different methods/ mechanisms from the same category** are provided.

Country	Percentage at least 1 point	Percentage 2 points only
Belgium (Flemish)	82 (1.7)	39 (1.7)
Bulgaria	55 (2.1)	16 (1.3)
Chile	48 (1.4)	13 (0.8)
Chinese Taipei	86 (1.4)	57 (1.6)
Colombia	71 (1.4)	29 (1.2)
Croatia	81 (1.3)	37 (1.8)
Denmark†	79 (1.2)	38 (1.5)
Dominican Republic	–	–
Estonia[1]	56 (1.6)	19 (1.4)
Finland	68 (1.6)	27 (1.5)
Italy	60 (1.5)	19 (1.1)
Latvia[1]	61 (2.0)	16 (1.2)
Lithuania	55 (2.2)	20 (1.7)
Malta	41 (1.4)	11 (0.7)
Mexico	70 (1.2)	28 (1.2)
Netherlands†	76 (1.9)	33 (2.1)
Norway (9)[1]	69 (1.2)	23 (1.0)
Peru	47 (1.5)	14 (1.0)
Russian Federation	79 (1.5)	35 (1.9)
Slovenia	67 (1.7)	29 (1.7)
Sweden[1]	76 (1.4)	37 (1.5)
ICCS 2016 average	**66 (0.4)**	**27 (0.3)**
Countries not meeting sample participation requirements		
Hong Kong SAR	67 (2.8)	22 (1.6)
Korea, Republic of[2]	78 (1.4)	33 (2.1)
Benchmarking participant not meeting sample participation requirements		
North Rhine-Westphalia (Germany)[1]	62 (2.2)	20 (2.3)

Notes:
* Correct response.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
1 National Defined Population covers 90% to 95% of National Target Population.
2 Country surveyed target grade in the first half of the school year.
- No comparable data available.

response were awarded partial credit (one score point), thus locating their response at Proficiency Level B on the scale.

The introductory stimulus presented in the first part of the unit (see sample item 6 in Table 3.6) provided students with a working definition of the misuse of power. In sample item 7, students able to provide more than one credit-worthy response demonstrated knowledge of at least two different ways of preventing misuse of power. The rationale behind interpreting responses to this item is that knowledge of more than one facet of a multifaceted concept is necessary to formulate effective arguments based on different perspectives on the issue. While the item itself does not require students to formulate a complex argument, it does require them to demonstrate the capacity to identify aspects of the content necessary for building a complex argument. On average across all countries, 27 percent of students were able to achieve full credit on this item. The percentages across countries ranged from 11 to 57 percent.

Students achieving partial credit on sample item 7 were able to identify any one of the eight different categories listed in the scoring guide. Because partial credit denotes students' awareness of this concept from a single perspective, it is indicative of a Level B standard of proficiency on the ICCS civic knowledge scale. On average across all countries, 66 percent of students were able to achieve *at least* partial credit on this item. The range of percentages across all countries was 41 to 86 percent.

Sample item 8 (Table 3.8), a multiple-choice item, required students to identify that the need for political parties to show they are not unduly influenced by donors can provide justification for laws requiring the disclosure of donors' identities. This item, located at Level A on the ICCS proficiency scale, is an example of students making connections between a political process and the laws used to regulate it. The item relates to the *rule of law* sub-domain of content domain 2 (civic principles) and the *evaluate* process in cognitive domain 2 (reasoning and analyzing) of the ICCS assessment framework. On average across all countries, 43 percent of students correctly responded to this item. The percentages across countries ranged from 20 to 83 percent.

Table 3.8: Sample item 8 with percentage correct by country

Individuals or groups sometimes give money to political parties as donations. Some countries have laws that require political parties to give the public access to information about donations to parties.

ICCS civic knowledge scale: Level A

Why do countries have these laws?

- The laws encourage people to vote for the political parties that receive fewer donations.
- The laws help the public to decide which party is likely to win the next election.
- The laws encourage more people to join the wealthy political parties.
- The laws discourage political parties from favoring the people who make the donations.*

Country	Percentage correct response	
Belgium (Flemish)	36	(2.1)
Bulgaria	38	(2.0)
Chile	34	(1.2)
Chinese Taipei	83	(1.0)
Colombia	37	(1.3)
Croatia	46	(1.7)
Denmark†	62	(1.4)
Dominican Republic	27	(1.4)
Estonia[1]	50	(1.7)
Finland	59	(1.5)
Italy	20	(1.1)
Latvia[1]	28	(1.4)
Lithuania	41	(1.8)
Malta	42	(1.4)
Mexico	25	(1.3)
Netherlands†	40	(1.8)
Norway (9)[1]	68	(1.0)
Peru	24	(1.2)
Russian Federation	47	(1.9)
Slovenia	43	(1.5)
Sweden[1]	50	(1.5)
ICCS 2016 average	**43**	**(0.3)**
Countries not meeting sample participation requirements		
Hong Kong SAR	67	(2.4)
Korea, Republic of[2]	–	
Benchmarking participant not meeting sample participation requirements		
North Rhine-Westphalia (Germany)[1]	51	(2.1)

Notes:
* Correct response.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
1 National Defined Population covers 90% to 95% of National Target Population.
2 Country surveyed target grade in the first half of the school year.
– No comparable data available.

Each of the example items was located at those points on the ICCS civic knowledge scale where a student had a 62 percent chance of answering the item correctly (Figure 3.2).[2] For example, a student with a measured ability of 443 scale points would have had a 62 percent probability of correctly answering sample item 4. The same student would have had a less than 62 percent probability of correctly answering sample items 5, 6, 7 (for partial or full credit), and 8, and a greater than 62 percent probability of correctly answering sample items 1, 2, and 3.

If a student attains a measured proficiency within a given level on the ICCS civic knowledge scale, we can be confident that he or she would have correctly answered at least half of the items spanning the level.[3] As a consequence, we can assume that the description of achievement for any given level is broadly applicable to any student with a measured proficiency within the level, regardless of where the student's proficiency is located within that level.

The civic knowledge scale recognizes the relative difficulty of items and the content and cognitive processes they are intended to represent (Figure 3.2). Items assessing students' reasoning and analytical abilities are not necessarily more difficult than those that assess knowing. Question difficulty results from a combination of two factors: (i) how familiar a student is with the concepts inherent in that question, and (ii) the type of cognitive processing that the student needs to engage in to correctly answer the question. As is evident from Figure 3.2, relatively simple processing of complex content can be similar to the proficiency needed for complex processing of familiar content.

Comparison of civic knowledge across countries

Average civic knowledge scores across countries

The average score on the reporting scale developed at the time of ICCS 2009 was set at 500 and the standard deviation at 100. This score and its standard deviation were established for all participating countries through the use of equally weighted national samples. The average score of the ICCS 2016 countries was 517 scale points (readers should note the differences in the composition of the group of countries participating across both surveys), and the standard deviation was 101 scale points for all country data with equally weighted national samples.

In ICCS 2016 the average country scores on the civic knowledge scale of 19 of 21 countries ranged from 467 to 586 scale points (approximately 1.2 international standard deviations), and the national averages of two countries, Peru (438 scale points) and the Dominican Republic (381 scale points), were substantially below 467 scale points (Table 3.9). The distribution of scores also varied across countries. This pattern can be seen graphically in Table 3.9, where the length of the bars shows the distribution of student scores for each country. The spread appeared to be unrelated to the average scale score across countries.

Nineteen countries recorded average scale scores statistically significantly different from the ICCS 2016 average of 517 scale points. The two exceptions were Lithuania and the Netherlands. Eight countries had national averages that were significantly below the ICCS 2016 average; 11 countries had national averages that were significantly higher. The difference between the bottom quartile and the top quartile (that is, the area covering the middle half of the averages for countries) was 61 scale points.

2 Scale descriptions were developed using a response probability of 0.62, while initial item calibration assumed a response probability of 0.5. See the ICCS 2016 technical report for more detailed information (Schulz et al., forthcoming).

3 This is a result of a combination of the response probability of 0.62 established for reporting student achievement and the level width of 84 scale points.

Figure 3.2: Location of example items on the civic knowledge scale

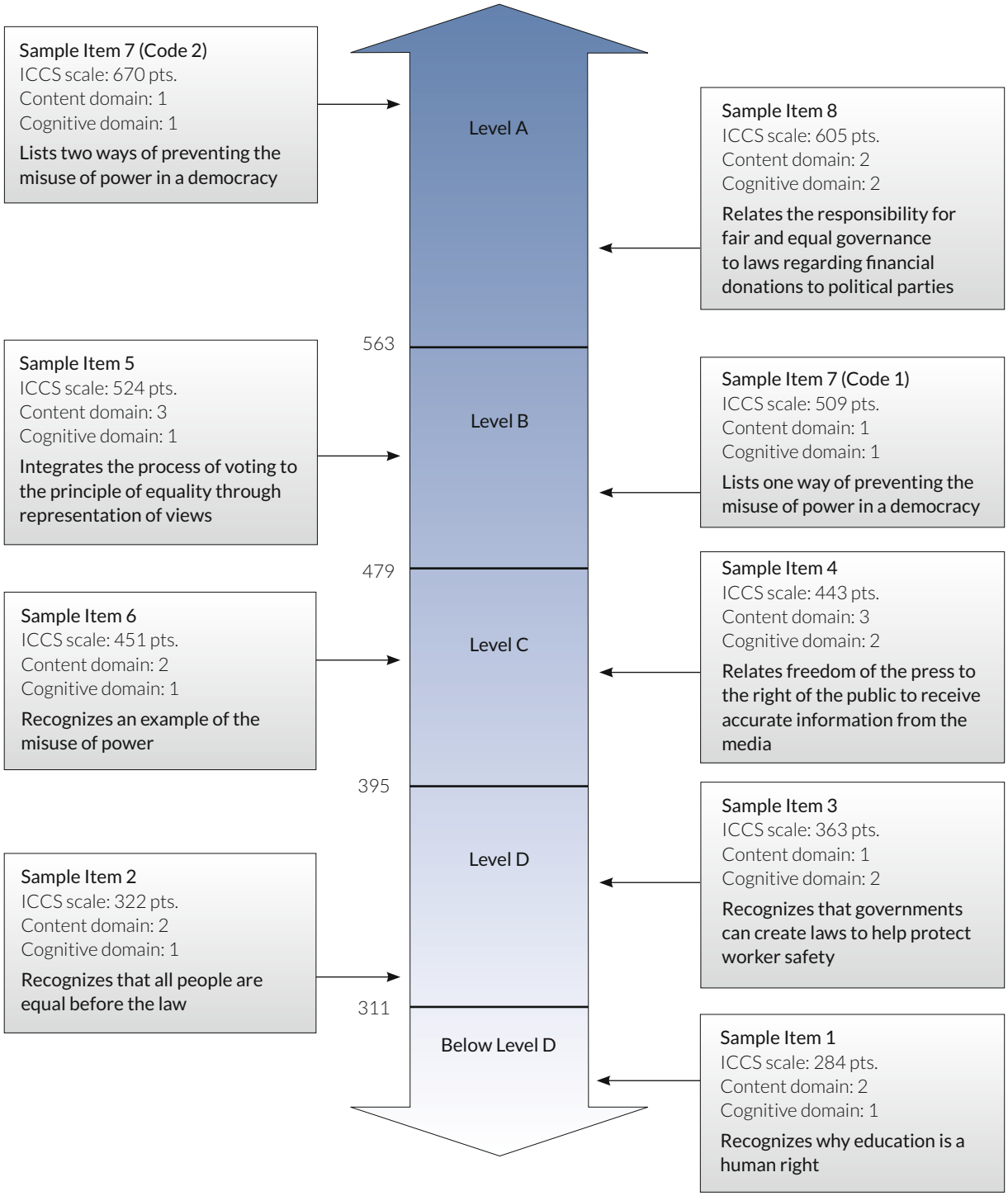
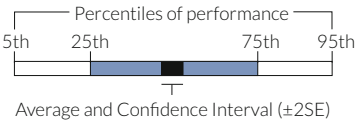


Table 3.9: Distributions of civic knowledge

Country	Civic knowledge			
	Years of schooling	Average age	Average scale score	HDI
Denmark†	8	14.9	586 (3.0) ▲	0.93
Chinese Taipei	8	14.1	581 (3.0) ▲	0.88[3]
Sweden[1]	8	14.7	579 (2.8) ▲	0.91
Finland	8	14.8	577 (2.3) ▲	0.90
Norway (9)[1]	9	14.6	564 (2.2) ▲	0.95
Estonia[1]	8	14.9	546 (3.1) ▲	0.87
Russian Federation	8	14.8	545 (4.2) ▲	0.80
Belgium (Flemish)	8	13.9	537 (4.1) ▲	0.90
Slovenia	8	13.8	532 (2.5) ▲	0.89
Croatia	8	14.6	531 (2.5) ▲	0.83
Italy	8	13.8	524 (2.4) ▲	0.89
Netherlands†	8	14.0	523 (4.5)	0.92
Lithuania	8	14.7	518 (3.0)	0.85
Latvia[1]	8	14.8	492 (3.1) ▼	0.83
Malta	9	13.8	491 (2.7) ▼	0.86
Bulgaria	8	14.7	485 (5.3) ▼	0.79
Chile	8	14.2	482 (3.1) ▼	0.85
Colombia	8	14.6	482 (3.4) ▼	0.73
Mexico	8	14.1	467 (2.5) ▼	0.76
Peru	8	14.0	438 (3.5) ▼	0.74
Dominican Republic	8	14.2	381 (3.0) ▼	0.72
ICCS 2016 average		**14.4**	**517 (0.7)**	
Countries not meeting sample participation requirements				
Hong Kong SAR	8	13.9	515 (6.6)	0.92
Korea, Republic of[2]	8	14.0	551 (3.6)	0.90
Benchmarking participant not meeting sample participation requirements				
North Rhine-Westphalia (Germany)[1]	8	14.3	519 (2.7)	0.93



Notes:
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.
[3] Data estimated for 2014. Source: http://focustaiwan.tw/news/asoc/201409180039.aspx.

We observed considerable variation in students' civic knowledge scores within countries. Across countries, the median variation between the bottom five percent and the top 95 percent of civic knowledge scores was 275 scale points, equivalent to a span of more than three levels on the ICCS civic knowledge scale. The pairwise comparisons of country achievement in Appendix Table E.1 indicate significant differences in civic knowledge between individual countries.

Average civic knowledge scores across countries

Table 3.9 also shows the percentages of students at each proficiency level of the civic knowledge scale for each country. We have presented the countries in descending order according to the percentage of students with scores that positioned them at Proficiency Level A on the scale. Not surprisingly, the order of countries in Table 3.9 is very similar to that in Table 3.10, where the countries appear in descending order of average score. Differences in country rankings are a result of differences in the distributions of students across the levels that exist within the countries with similar average student civic knowledge scores.

On average across all participating countries, two thirds of students achieved scores that placed them within Levels A and B of the ICCS civic knowledge proficiency scale (Table 3.10). A further 21 percent of students attained scores commensurate with Level C. In nine countries, the highest percentages of students with test scores at a particular level corresponded to Level A, while in a further nine countries the relatively highest percentage was recorded at Level B. In 13 countries, more than 60 percent of students had scores at Levels A and B. In two countries, the relatively highest percentages of student performance were found at Level C. Only one country had the relatively highest percentage of students attaining test scores corresponding to Level D. In two other countries—Peru and the Dominican Republic—more than 60 percent of students were at Level C or below.

Variations across countries with respect to associations between civic knowledge, Human Development Index, and student age

The Human Development Index (HDI) value provided by the United Nations Development Programme (UNDP), and quoted for each ICCS 2016 country, is a "summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living" (UNDP, 2016).

The extent of educational and economic development in the ICCS countries that the HDI values represent (Table 3.9) provides a point of reference during examination of the differences in civic knowledge scores across countries. The HDI ranges from 0 to 1 and has four categories: "very high" (HDI greater than 0.8), "high" (HDI between 0.7 and 0.8), "medium" (HDI between 0.6 and 0.7), and "low" (HDI less than 0.6). The HDI also provides a means of classifying a country as developed (very high HDI) or developing (all other HDI categories).

Strong associations between HDI and average civic knowledge scale scores emerged across the ICCS 2016 countries (Figure 3.3; r = 0.82,[4] p = 0.78).[5] Of the 11 countries with average civic knowledge scale scores statistically significantly above the ICCS 2016 international average of 517 scale points, three had very high HDI with values above 0.9, and eight had very high HDI, with values between 0.8 and 0.9. In contrast, of the eight countries with average civic knowledge scores statistically significantly below 517 scale points, three had very high HDI with values between 0.8 and 0.9, and five had high HDI with values between 0.7 and 0.8. No countries with medium or low HDI participated in ICCS 2016.

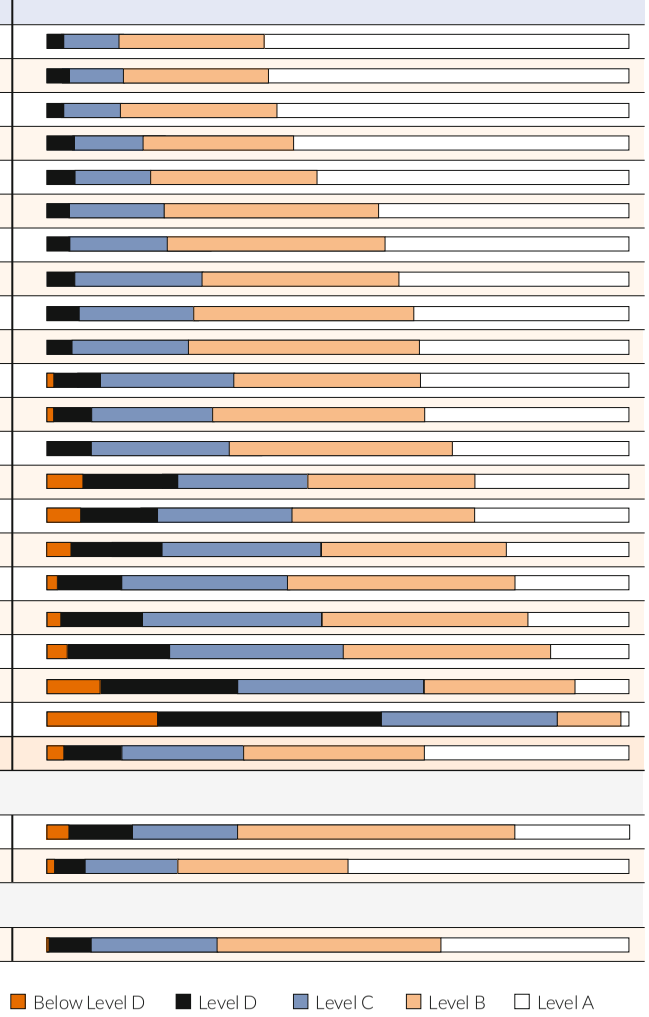
The ICCS 2016 countries also varied with respect to the average age of students in the target grade (Grade 8). The range was 13.8 to 14.9 years across countries (refer to Table 3.9). At first glance, the patterns in association between average student age across countries and average civic knowledge scale scores are less obvious than the pattern of association with HDI. This difference is partly because average student age across countries relates to local conditions (e.g., the age at which children begin school) and to student retention and progression rates, factors that may, in turn, also be associated with HDI. Across countries, student age showed a weak positive association with civic knowledge (r = 0.33). We found no association between average student age and HDI at the country level (r = 0.02).

4 Pearson correlation coefficient between average country civic knowledge scale scores and HDI.

5 Spearman's rank correlation between the ranks of average country civic knowledge scale scores and ranks of country HDI.

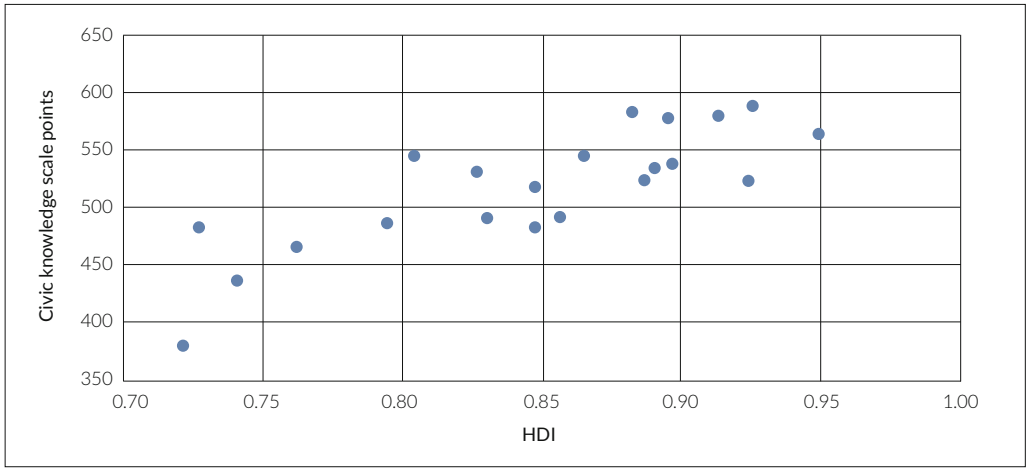
Table 3.10: Percentages of students at each proficiency level of civic knowledge

Country	Below Level D	Level D	Level C	Level B	Level A
Denmark†	0 (0.1)	2 (0.4)	10 (0.8)	25 (0.8)	62 (1.3)
Chinese Taipei	0 (0.2)	3 (0.4)	10 (0.8)	25 (1.2)	62 (1.4)
Finland	0 (0.1)	2 (0.4)	10 (0.8)	27 (1.4)	60 (1.6)
Sweden[1]	1 (0.2)	4 (0.6)	12 (0.8)	25 (1.0)	58 (1.3)
Norway (9)[1]	1 (0.2)	4 (0.3)	13 (0.7)	29 (1.0)	53 (1.2)
Estonia[1]	0 (0.1)	3 (0.5)	17 (1.0)	37 (1.5)	43 (1.8)
Russian Federation	0 (0.1)	4 (0.6)	17 (1.2)	37 (1.5)	42 (2.1)
Belgium (Flemish)	0 (0.1)	5 (0.8)	19 (1.6)	37 (1.6)	40 (2.2)
Slovenia	0 (0.2)	4 (0.5)	21 (0.9)	38 (1.2)	37 (1.4)
Croatia	0 (0.1)	4 (0.5)	20 (1.2)	40 (1.5)	36 (1.5)
Netherlands†	1 (0.4)	8 (1.4)	23 (1.5)	32 (1.8)	36 (1.8)
Italy	1 (0.3)	7 (0.6)	22 (0.8)	36 (1.1)	35 (1.2)
Lithuania	1 (0.3)	7 (0.8)	24 (1.2)	39 (1.6)	31 (1.7)
Bulgaria	6 (1.2)	16 (1.3)	23 (1.4)	28 (1.5)	27 (1.5)
Malta	6 (0.5)	13 (0.8)	23 (1.0)	32 (1.1)	26 (1.1)
Chile	4 (0.5)	16 (0.9)	27 (1.0)	32 (1.0)	21 (1.1)
Latvia[1]	2 (0.4)	11 (1.1)	29 (1.3)	39 (1.8)	19 (1.6)
Colombia	2 (0.4)	14 (1.1)	31 (1.0)	35 (1.2)	17 (1.2)
Mexico	3 (0.4)	18 (1.0)	33 (1.2)	33 (1.0)	13 (0.8)
Peru	9 (0.9)	24 (1.2)	32 (1.2)	26 (1.2)	9 (0.8)
Dominican Republic	19 (1.2)	39 (1.2)	30 (1.2)	11 (1.0)	1 (0.4)
ICCS 2016 average	3 (0.1)	10 (0.2)	21 (0.2)	31 (0.3)	35 (0.3)
Countries not meeting sample participation requirements					
Hong Kong SAR	3.4 (0.9)	11 (1.5)	19 (1.7)	32 (1.6)	35 (2.3)
Korea, Republic of[2]	0.8 (0.3)	5 (0.8)	17 (1.0)	31 (1.2)	47 (1.6)
Benchmarking participant not meeting sample participation requirements					
North Rhine-Westphalia (Germany)[1]	0.6 (0.1)	7 (0.7)	23 (1.7)	39 (1.5)	31 (1.6)



Notes:
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.

Figure 3.3: Scatterplot of average civic knowledge scale scores and Human Development Index (HDI) values



Changes in civic knowledge since 2009

The ICCS 2016 test included 42 secure items from ICCS 2009. This inclusion meant that we could report student civic knowledge scores for the current ICCS cycle on the scale established in 2009, and also compare changes in civic knowledge across these first two cycles of ICCS. Twenty-one of the countries that participated in ICCS 2009 also conducted the ICCS 2016 survey. Eighteen of these countries met the necessary technical requirements within each cycle to allow reliable comparisons of students' civic knowledge across the two cycles.[6]

Most countries recorded an increase in civic knowledge between 2009 and 2016 (Table 3.11). Eleven of the 18 countries with comparable data recorded ICCS 2016 national average civic knowledge scale scores significantly higher than the corresponding scores in the previous cycle. The score point-differences varied from 13 scale points in Lithuania to 42 scale points in Sweden. We found no statistically significant score changes between the two cycles in the remaining seven countries.

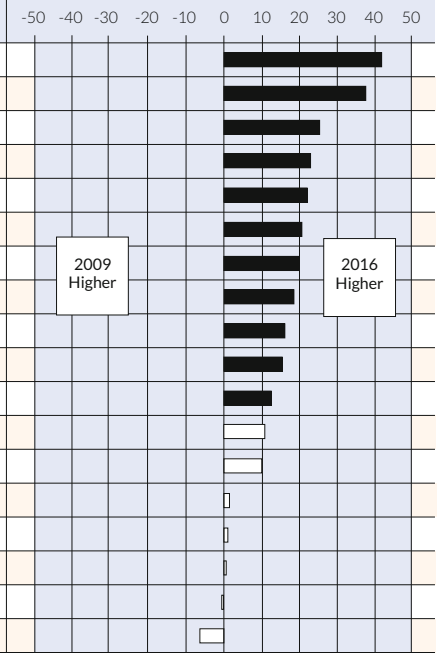
The key differences between achievement at Level C and below in comparison to Level B and above on the civic knowledge scale are the specificity of students' knowledge and their understanding of the interconnectedness of civic and civil institutions, including those between policies, practices, and intended outcomes. This distinction needs to be kept in mind with regard to Table 3.12, which shows the changes in the proportions of students at Level B and above on the ICCS civic knowledge proficiency scale between 2009 and 2016.

Consistent with the scale score increases (refer Table 3.11), the percentages of students at Level B and above increased markedly between 2009 and 2016 (Table 3.12). In 14 of the 18 countries with comparable data, the increases were statistically significant. The increases varied from three percent in Denmark to 18 percent in the Russian Federation. In the remaining four countries, the differences in the percentages of students at Level B and above between 2009 and 2016 were not statistically significant.

6 The ICCS 2009 and 2016 technical requirements relating to sampling, instrument preparation and field operations are included in the ICCS Technical Reports (Schulz, et al., 2010 and Schulz et al., forthcoming).

Table 3.11: Changes in average civic knowledge between 2009 and 2016

Country	Average scale score ICCS 2016	Average scale score ICCS 2009	Difference (2016-2019)	Differences 2016-2009
Sweden[1]	579 (2.8)	537 (3.1)	**42** (5.2)	
Russian Federation	545 (4.3)	506 (3.8)	**38** (6.5)	
Norway (9)[1]	564 (2.2)	538 (4.0)	**25** (5.5)	
Belgium (Flemish)	537 (4.1)	514 (4.7)	**23** (6.9)	
Chinese Taipei	581 (3.0)	559 (2.4)	**22** (5.0)	
Estonia[1]	546 (3.1)	525 (4.5)	**21** (6.3)	
Colombia	482 (3.4)	462 (2.9)	**20** (5.5)	
Bulgaria	485 (5.3)	466 (5.0)	**19** (8.0)	
Slovenia	532 (2.5)	516 (2.7)	**16** (4.8)	
Mexico	467 (2.5)	452 (2.8)	**15** (4.9)	
Lithuania	518 (3.0)	505 (2.8)	**13** (5.2)	
Latvia[1]	492 (3.1)	482 (4.0)	11 (5.9)	
Denmark†	586 (3.0)	576 (3.6)	10 (5.6)	
Malta	491 (2.7)	490 (4.5)	2 (6.1)	
Dominican Republic	381 (3.0)	380 (2.4)	1 (5.0)	
Finland	577 (2.3)	576 (2.4)	0 (4.5)	
Chile	482 (3.1)	483 (3.5)	-1 (5.6)	
Italy	524 (2.4)	531 (3.3)	-6 (5.1)	



Notes:
() Standard errors appear in parentheses.
Statistically significant changes ($p < 0.05$) between 2009 and 2016 are displayed in **bold**.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.

■ Difference statistically significant at 0.05 level
□ Difference *not* statistically significant

Variations in civic knowledge across countries with respect to student background characteristics

In this section we address ICCS Research Question 2(a): *Are there variations in civic knowledge associated with student characteristics and background variables?* (See Chapter 1.) Our focus at this point is therefore on the associations between students' civic knowledge and student gender, student age within countries, variables associated with students' socioeconomic status, whether or not students had an immigrant background, and the language students spoke at home. Chapter 7 documents further investigation, based on regression modelling, of the relationships between student civic knowledge and student-level and school-level factors.

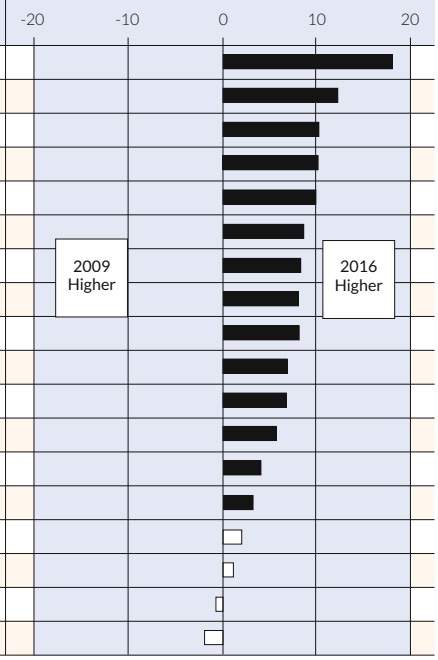
Gender differences in civic knowledge

A significant gender difference in civic knowledge was apparent for only one of the 28 countries that took part in the IEA CIVED study (Torney-Purta et al., 2001). In ICCS 2009, "the average ICCS civic knowledge scores of female students were higher than those of male students both overall and in nearly all countries" (Schulz, Ainley, Fraillon, Kerr & Losito, 2010, p. 80).

Gender differences in the ICCS 2016 data (Table 3.13) tell a similar story to the one recorded in ICCS 2009. In 2016, the average civic knowledge sores of female students was statistically significantly higher than that of male students in 19 of 21 countries and overall across countries. The two countries where the gender difference was not statistically significant were Peru and Belgium (Flemish). The magnitude of the significant differences in the achievement of female students relative to male students ranged from nine scale points in Colombia to 38 scale points in Malta.

Table 3.12: Changes in percentages of students at or above proficiency Level B between 2009 and 2016

Country	Level B and above		Difference (2016–2019)	Differences 2016-2009
	2009	2016		-20 -10 0 10 20
Russian Federation	61.6 (1.6)	79.4 (1.5)	**18** (2.4)	
Sweden[1]	71.7 (1.2)	83.5 (1.0)	**12** (1.7)	
Norway (9)[1]	72.1 (1.6)	82.3 (0.8)	**10** (1.9)	
Colombia	42.7 (1.5)	52.8 (1.8)	**10** (2.7)	
Estonia[1]	70.0 (1.8)	79.9 (1.2)	**10** (2.4)	
Mexico	37.3 (1.4)	45.9 (1.4)	**9** (2.4)	
Belgium (Flemish)	67.8 (2.5)	76.1 (1.8)	**8** (3.3)	
Slovenia	66.4 (1.4)	74.6 (1.1)	**8** (2.1)	
Bulgaria	46.9 (2.3)	55.1 (2.1)	**8** (3.2)	
Latvia[1]	51.5 (2.1)	58.5 (1.7)	**7** (3.0)	
Chinese Taipei	79.8 (1.0)	86.7 (1.0)	**7** (1.5)	
Lithuania	63.4 (1.5)	69.1 (1.5)	**6** (2.5)	
Dominican Republic	8.1 (0.7)	12.2 (1.0)	**4** (1.4)	
Denmark†	83.6 (1.0)	87.0 (1.0)	**3** (1.5)	
Chile	50.9 (1.9)	53.1 (1.5)	2 (2.7)	
Malta	56.6 (2.0)	57.8 (1.3)	1 (2.6)	
Finland	87.7 (0.8)	87.4 (0.8)	0 (1.3)	
Italy	72.8 (1.4)	71.0 (1.2)	-2 (2.2)	



Notes:
() Standard errors appear in parentheses.
Statistically significant changes ($p < 0.05$) between 2009 and 2016 are displayed in **bold**.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.

■ Difference statistically significant at 0.05 level
□ Difference *not* statistically significant

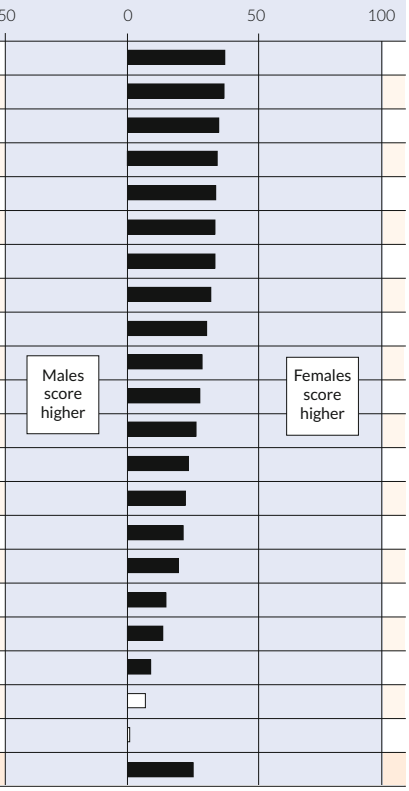
Student age and civic knowledge within countries

ICCS 2009 found statistically significant negative associations between student age and civic knowledge. Three of the ICCS 2009 countries recorded statistically significant positive associations between student age and civic knowledge; no significant association between student age and civic knowledge was recorded in two countries (Schulz et al., 2010, p. 76). In order to investigate the relationship between student age and civic knowledge in the ICCS 2016 countries, we conducted a regression analysis using the ICCS scale score as the outcome variable and student age as a predictor (see Table B.1 in Appendix B for the results of the regression analyses). The pattern of associations between student age and achievement within countries in 2016 was very similar to that reported in ICCS 2009. Fifteen of 21 countries recorded statistically significant negative associations between age and civic knowledge. Associations between age and knowledge in five of the remaining countries were not significant. However, the last of the 21 countries (Norway) recorded a significant positive association. Across the combined international sample, the association between student age and civic knowledge within countries was negative and statistically significant.

The high proportion of countries with negative associations between age and achievement is a typical outcome of studies that draw grade-based samples of students. In some countries, students regarded as having higher academic potential begin school at a younger age and move more quickly through the years of schooling than other students. They therefore make up a higher proportion of younger students in a given grade level. Variations in retention and progression policies across countries also tend to influence within-country associations between age and achievement.

Table 3.13: Gender differences in civic knowledge

Country	Average scale score females	Average scale score males	Difference (absolute value)	Gender difference
Malta	511 (3.7)	473 (3.9)	**38** (5.4)	
Bulgaria	505 (5.9)	468 (6.0)	**37** (5.6)	
Sweden[1]	598 (3.1)	562 (3.9)	**36** (4.3)	
Slovenia	550 (2.6)	515 (3.3)	**35** (3.4)	
Chinese Taipei	599 (3.4)	564 (3.3)	**34** (3.4)	
Norway (9)[1]	581 (2.4)	547 (2.6)	**34** (2.4)	
Estonia[1]	563 (3.4)	530 (3.4)	**33** (3.6)	
Finland	594 (2.3)	561 (3.4)	**33** (3.8)	
Latvia[1]	507 (3.8)	476 (3.7)	**30** (4.2)	
Dominican Republic	396 (3.4)	367 (3.3)	**29** (3.0)	
Lithuania	532 (3.6)	504 (3.4)	**28** (3.7)	
Croatia	544 (2.9)	518 (2.9)	**26** (3.2)	
Chile	494 (3.8)	471 (3.3)	**24** (3.8)	
Denmark†	597 (2.9)	575 (3.7)	**23** (3.1)	
Mexico	478 (3.0)	456 (3.2)	**21** (3.4)	
Italy	535 (3.0)	515 (3.0)	**20** (3.6)	
Russian Federation	552 (5.1)	538 (4.3)	**14** (4.6)	
Netherlands†	530 (5.0)	516 (4.9)	**13** (4.0)	
Colombia	486 (4.1)	478 (3.6)	**9** (3.9)	
Peru	441 (4.6)	435 (4.1)	6 (4.9)	
Belgium (Flemish)	538 (5.4)	537 (4.6)	1 (5.8)	
ICCS 2016 average	**530** (0.8)	**505** (0.8)	**25** (0.9)	
Countries not meeting sample participation requirements				
Hong Kong SAR	532 (6.6)	499 (7.7)	**33** (6.9)	
Korea, Republic of[2]	568 (4.8)	537 (3.4)	**31** (4.6)	



Notes:
() Standard errors appear in parentheses.
Statistically significant differences ($p < 0.05$) are displayed in **bold**.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.

Table B.1 in Appendix B shows the differences in ICCS scale scores across those countries with students in the same grade but whose age range spanned one year. This difference was quite large in Belgium (Flemish), Chile, Denmark, Italy, the Netherlands, and Peru. In these countries, younger students within the same grade achieved at least 30 scale points more than students one year older in the same grade—a difference equivalent to more than one-third of the width of a proficiency level.

Associations between civic knowledge and socioeconomic background characteristics

ICCS 2009 found that "the aspect of family background most strongly and consistently associated with civic knowledge was socioeconomic background" (Schulz et al., 2010, p. 216). However, the strength of the association between socioeconomic background and civic achievement varied greatly across countries. Other family-related aspects, such as student-reported involvement in political discussion, were not as strongly associated.

To measure and report on socioeconomic background during ICCS 2016, we used responses from the student questionnaire. These related to parental occupational status, parental education, and the number of books in the home, and were the same three socioeconomic background variables

used in ICCS 2009. Of the three, parental occupational status had the strongest association with student civic knowledge (Schulz et al., 2010, p. 202).

We coded parental occupations (as reported by students in their answers to constructed-response questions) according to the ISCO-08 classification (International Labour Organization, 2012). We then transformed this classification into a score on the International Socio-economic Index (SEI) of occupational status (Ganzeboom, de Graaf, & Treiman, 1992). If students provided data for two parents, we used the highest SEI score as an indicator of parental occupational status. The SEI scale is continuous and ranges from 16 to 90. In order to establish comparable descriptions of the associations between each of the three socioeconomic variables and student civic knowledge, we established two categories for each variable based on both the substantive meaning of the categories and the proportion of students within each category.

When summarizing the relationship between parental occupation and student civic knowledge, we divided the SEI scale into two categories based on international cut-off points indicating "low–medium occupational status" (below 50 SEI scale points) and "medium–high occupational status" (50 SEI scale points and above). On average across ICCS countries, six percent of students could not be assigned SEI scores because they did not answer the question. Of the students with valid data, 55 percent were in the low–medium category and 45 percent in the medium–high category.

To measure the educational attainment of each parent (based on the student responses), we used predefined categories denoting educational levels in each country. These categories were constructed with reference to the International Standard Classification of Education (ISCED) and consisted of "ISCED 6, 7, or 8," "ISCED 4 or 5," "ISCED 3," "ISCED 2," and "Did not complete ISCED 2" (OECD, 1999; UNESCO, 2006). When students provided data for both their parents, we used the highest ISCED level as the indicator of parental educational attainment, and when summarizing the association between the highest level of parental education and student civic knowledge, we used two categories of parental education: "Below ISCED 6 (not having completed a Bachelor's degree or higher)" and "ISCED 6, 7, or 8 (Bachelor's degree or higher)." On average across the ICCS countries, three percent of students had missing data. Among students with valid data, 63 percent reported the highest level of parental educational attainment as below Bachelor's level, while 37 percent of students reported attainment at Bachelor's level or above.

As a measure of home literacy resources, we used students' reports of number of books in the home. Number of books was broken down into six categories: "0 to 10 books," "11 to 25 books," "26 to 100 books," "101 to 200 books," and "more than 200 books." When summarizing the relationship between the number of books in the home and student civic knowledge, we used two categories: "below 26 books" and "26 books and above." On average, one percent of ICCS students had missing data. Of those with valid data, 40 percent said they had fewer than 26 books at home; 60 percent said they had 26 or more than 26 books at home.

We found statistically significant associations between each of the three socioeconomic background variables and civic knowledge (Table 3.14). The horizontal graphs in the table show the magnitude (in civic knowledge scale points), direction, and statistical significance of the difference between the average civic knowledge scores of students in each group. For each of the three variables, a green bar indicates a statistically significant difference in student civic knowledge in favor of the "higher" socioeconomic-status group. A red bar, had there been one, would have shown a statistically significant difference in student civic knowledge in favor of the "lower" socioeconomic-status group.

For each of the three socioeconomic background variables in each country, and overall across all countries, the average civic knowledge of students in the higher groups was statistically significantly higher than that of students in the lower groups. However, the magnitude of the differences between groups for all three variables varied considerably across countries.

Table 3.14: Percentages by category of parental occupation, parental education, and number of books in the home, and comparison of average civic knowledge between categories

Country	Civic knowledge scores by parental occupation (SEI)				Civic knowledge scores by parental education (ISCED)				Civic knowledge scores by books in the home			
	SEI below 50		SEI 50 and above		Post-secondary non-tertiary and below		Tertiary		Below 26		26 and above	
	%	Average	Average	%	%	Average	Average	%	%	Average	Average	%
Belgium (Flemish)	53 (1.8)	516 (3.7)	**567** (4.2)	47 (1.8)	42 (1.9)	505 (4.7)	**563** (3.9)	58 (1.9)	38 (2.0)	508 (4.8)	**555** (4.2)	62 (2.0)
Bulgaria	54 (1.9)	462 (5.8)	**534** (4.7)	46 (1.9)	53 (1.7)	450 (6.9)	**526** (4.8)	47 (1.7)	46 (1.8)	433 (6.7)	**532** (3.8)	54 (1.8)
Chile	67 (1.4)	470 (3.3)	**525** (2.9)	33 (1.4)	76 (1.2)	470 (3.3)	**528** (3.2)	24 (1.2)	55 (1.0)	462 (3.4)	**511** (3.3)	45 (1.0)
Chinese Taipei	56 (1.3)	568 (3.3)	**606** (3.4)	44 (1.3)	68 (1.4)	570 (3.1)	**607** (3.4)	32 (1.4)	40 (1.3)	551 (3.5)	**602** (2.9)	60 (1.3)
Colombia	67 (1.4)	471 (3.7)	**508** (3.9)	33 (1.4)	71 (1.5)	477 (3.4)	**496** (4.1)	29 (1.5)	71 (1.3)	470 (3.5)	**511** (3.8)	29 (1.3)
Croatia	63 (1.3)	521 (2.4)	**554** (3.6)	37 (1.3)	73 (1.4)	521 (2.4)	**560** (4.3)	27 (1.4)	40 (1.3)	509 (3.1)	**546** (2.6)	60 (1.3)
Denmark†	44 (1.4)	561 (3.8)	**613** (2.7)	56 (1.4)	75 (1.0)	578 (3.1)	**625** (3.7)	25 (1.0)	28 (1.1)	550 (4.8)	**602** (2.6)	72 (1.1)
Dominican Republic	74 (1.1)	378 (2.9)	**408** (4.6)	26 (1.1)	76 (1.2)	371 (2.9)	**417** (4.5)	24 (1.2)	79 (1.0)	378 (2.8)	**399** (5.7)	21 (1.0)
Estonia[1]	54 (2.0)	529 (2.7)	**573** (3.8)	46 (2.0)	57 (1.9)	533 (2.6)	**565** (4.5)	43 (1.9)	24 (1.1)	504 (3.7)	**560** (3.2)	76 (1.1)
Finland	56 (1.0)	563 (2.7)	**599** (2.6)	44 (1.0)	58 (1.1)	568 (2.6)	**593** (3.4)	42 (1.1)	22 (0.9)	539 (4.3)	**587** (2.3)	78 (0.9)
Italy	68 (1.5)	511 (2.7)	**558** (2.7)	32 (1.5)	81 (1.2)	519 (2.6)	**554** (3.9)	19 (1.2)	32 (1.3)	487 (3.4)	**543** (2.3)	68 (1.3)
Latvia[1]	55 (1.3)	480 (3.2)	**515** (4.1)	45 (1.3)	57 (1.2)	480 (3.1)	**511** (4.4)	43 (1.2)	29 (1.0)	460 (3.9)	**507** (3.4)	71 (1.0)
Lithuania	60 (1.4)	504 (3.2)	**546** (3.6)	40 (1.4)	66 (1.1)	504 (2.9)	**551** (3.8)	34 (1.1)	38 (1.3)	489 (3.2)	**537** (3.2)	62 (1.3)
Malta	56 (0.9)	475 (3.5)	**530** (3.1)	44 (0.9)	69 (0.8)	489 (2.9)	**514** (4.0)	31 (0.8)	28 (0.9)	448 (4.1)	**511** (2.6)	72 (0.9)
Mexico	74 (1.1)	457 (2.6)	**501** (3.6)	26 (1.1)	75 (1.1)	456 (2.5)	**501** (3.4)	25 (1.1)	71 (1.0)	457 (2.5)	**493** (3.3)	29 (1.0)
Netherlands†	52 (1.5)	501 (6.1)	**551** (4.5)	48 (1.5)	56 (1.8)	501 (5.2)	**560** (4.7)	44 (1.8)	35 (1.7)	485 (6.9)	**545** (3.9)	65 (1.7)
Norway (9)[1]	40 (1.1)	540 (2.5)	**586** (2.4)	60 (1.1)	40 (1.2)	547 (2.6)	**582** (2.3)	60 (1.2)	19 (0.8)	513 (3.3)	**578** (2.1)	81 (0.8)
Peru	77 (1.0)	426 (3.3)	**491** (4.8)	23 (1.0)	73 (1.0)	425 (3.5)	**474** (4.7)	27 (1.0)	60 (1.1)	417 (3.5)	**470** (4.4)	40 (1.1)
Russian Federation	49 (1.8)	526 (3.4)	**567** (4.7)	51 (1.8)	47 (1.8)	525 (3.4)	**563** (4.9)	53 (1.8)	33 (1.3)	516 (3.9)	**559** (4.6)	67 (1.3)
Slovenia	55 (1.4)	512 (2.4)	**560** (2.9)	45 (1.4)	66 (1.4)	522 (2.3)	**556** (4.4)	34 (1.4)	30 (1.1)	495 (3.6)	**548** (2.6)	70 (1.1)
Sweden[1]	44 (1.2)	552 (3.7)	**611** (3.2)	56 (1.2)	41 (1.0)	558 (4.6)	**603** (3.3)	59 (1.0)	28 (1.1)	528 (4.8)	**601** (2.7)	72 (1.1)
ICCS 2016 average	58 (0.3)	501 (0.8)	**548** (0.8)	42 (0.3)	63 (0.3)	503 (0.8)	**545** (0.9)	37 (0.3)	40 (0.3)	486 (0.9)	**538** (0.7)	60 (0.3)
Countries not meeting sample participation requirements												
Hong Kong SAR	59 (1.5)	515 (6.6)	**516** (7.9)	41 (1.5)	77 (1.3)	512 (6.5)	**534** (10.1)	23 (1.3)	43 (1.3)	494 (7.5)	**532** (7.3)	57 (1.3)
Korea, Republic of[1]	60 (1.2)	541 (3.6)	**565** (5.2)	40 (1.2)	37 (1.9)	524 (5.0)	**569** (3.4)	63 (1.9)	12 (0.9)	498 (6.0)	**559** (3.3)	88 (0.9)

Difference between comparison groups statistically significant at $p < 0.05$.
Difference between comparison groups is *not* statistically significant at $p < 0.05$.

Notes:
() Standard errors appear in parentheses.
Score averages that are significantly larger ($p < 0.05$) than those in the comparison group are displayed in **bold**.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.

Across all countries, the difference between the average civic knowledge scale scores of students in the high (SEI 50 and above) and low (SEI below 50) parental occupation groups was 47 scale points, with a minimum of 31 scale points in the Dominican Republic and a maximum of 72 scale points in Bulgaria. The difference between the average civic knowledge scale scores of students in the high (ISCED Level 6 and above: tertiary) and low (Below ISCED Level 6: post-secondary non-tertiary and below) parental education groups across all countries was 42 scale points, with the minimum score of 18 scale points in Colombia and the maximum of 76 scale points in Bulgaria.

Cross-nationally, the difference between the average civic knowledge scale scores of students who reported having 26 or more books at home and those students who reported fewer than 26 books at home was 52 scale points, with a minimum of 22 scale points in the Dominican Republic and a maximum of 99 scale points in Bulgaria.

All three indicators of students' socioeconomic status contributed to a composite index of socioeconomic status. This index is included in the multilevel regression analyses presented in Chapter 7.

Associations between civic knowledge and immigrant and language backgrounds

The ICCS 2016 student questionnaire included two questions that allowed us to measure and report on students' immigrant background and language background and to identify associations between these variables and civic knowledge.

The first question asked students to indicate in which country they and each of their parents were born. The international coding of the responses to this question classified each student and any reported parents as "born in country of test" or "not born in country of test." These data were further reduced to form a single variable relating to the student. This variable was coded as "immigrant family" when the student reported *all* parents[7] as born abroad (regardless of where the student was born) and "non-immigrant family" when at least one parent was born in the country where the survey was conducted. On average across the ICCS countries, relevant data pertaining to this question were missing for four percent of the students. Among those students with valid data, 93 percent reported that they were from a non-immigrant family, while seven percent said they were from an immigrant family.

The second question asked students what language they spoke at home most of the time. This variable was coded as "language of test" or "other" for the purpose of the analyses. On average across the ICCS 2016 countries, relevant data were missing for two percent of the students. Of those students with valid data, 92 percent reported that they mainly spoke the language of testing at home. Eight percent said that they mainly spoke another language at home.

As was the case with the ICCS 2009 survey, ICCS 2016 recorded significant associations between students' immigrant status, language background, and civic knowledge. Across all countries in 2009, the average civic knowledge scale score of students from non-immigrant families was 37 scale points higher than the average score for those students from immigrant families. The average civic knowledge score was 46 scale points higher for students who mainly spoke the language of the test at home than for those who mainly did not (Schulz et al., 2010, p. 196).

The data show that, in general in 2016, the students from non-immigrant families had higher civic knowledge scale scores than those from immigrant families. Similarly, those students who reported speaking the language of instruction (and the test) at home tended to have higher civic knowledge scale scores than those who did not. However, in contrast to the three socioeconomic status variables reported in Table 3.14, there was considerably more variation across countries

7 "All parents" refers to both parents when a student reported on the background of two parents or to one parent if the student reported on the background of only one parent.

with respect to the associations between student immigrant background, language background, and civic knowledge.

Table 3.15 provides a summary of the associations for ICCS 2016 between each of the immigrant and language background variables and student civic knowledge. The information in the table also includes the percentage of students in each country within the immigrant and/or language background categories, together with the average achievement of students within each category. The horizontal graphs show the magnitude (in civic knowledge scale points), direction, and statistical significance of the differences between the civic knowledge averages of the two groups of students.

The civic knowledge scores of students from non-immigrant families in 14 of 21 ICCS 2016 countries were, on average, statistically significantly higher than the scores of students from immigrant families. In five countries, no significant differences in average student civic knowledge between the two groups were evident. In Bulgaria and Chinese Taipei, the numbers of students from immigrant families were too low to support reporting of the relationship between immigrant background and student civic knowledge.

Across all countries, the difference between the average civic knowledge scale scores of students from non-immigrant and immigrant families was 43 scale points,[8] with a minimum of six scale points (not statistically significantly different from zero) in Croatia and a maximum of 90 scale points in Colombia. The percentages of students from immigrant families varied from zero in Bulgaria to 18 percent in Sweden.

In 17 of the 21 ICCS 2016 countries, students who reported speaking the language of the test at home had statistically significantly higher average civic knowledge scores than those who did not speak the test language at home. In three of the remaining four countries, there was no significant difference between the groups. Across all countries, the difference between average civic knowledge scale scores of students reporting that they spoke the language of the test at home and those who said they mostly spoke a different language was 48 scale points.

Malta was the only country where we observed an average civic knowledge scale score that was higher for students who spoke another language at home than for those who reported speaking the test language at home. The difference of 18 scale score points was statistically significant. The highest difference in average achievement between students who spoke the language of testing at home and those who did not was 108 scale points in Bulgaria. The percentages of students who spoke a language other than the language of testing at home varied from one percent in Chile, Colombia, and Croatia to 28 percent in Malta.

8 This difference in averages was calculated for all countries except Bulgaria and Chinese Taipei where the numbers of students from immigrant families were too small for the estimation of group averages.

Table 3.15: Percentages by category of immigrant background and language spoken at home and comparison of average civic knowledge between categories

Country	Civic knowledge scores by immigrant background				Civic knowledge scores by language			
	Immigrant family		Non-immigrant family		Other		Test	
	%	Average	Average	%	%	Average	Average	%
Belgium (Flemish)	16 (1.6)	489 (7.3)	**548** (3.8)	84 (1.6)	16 (1.1)	491 (6.6)	**550** (3.9)	84 (1.3)
Bulgaria	0 (0.1)	^	488 (5.1)	100 (0.1)	11 (1.5)	390 (10.1)	**498** (4.4)	89 (1.6)
Chile	2 (0.3)	463 (13.4)	489 (3.0)	98 (0.3)	1 (0.2)	445 (14.8)	**484** (3.1)	99 (0.3)
Chinese Taipei	1 (0.2)	^	583 (2.9)	99 (0.2)	10 (0.7)	538 (5.8)	**588** (2.8)	90 (0.7)
Colombia	1 (0.1)	395 (20.3)	**485** (3.3)	99 (0.1)	1 (0.2)	468 (15.3)	482 (3.4)	99 (0.2)
Croatia	9 (0.9)	526 (6.7)	533 (2.4)	91 (0.9)	1 (0.2)	512 (15.3)	532 (2.5)	99 (0.3)
Denmark†	9 (0.8)	533 (7.6)	**594** (2.8)	91 (0.8)	5 (0.5)	528 (9.9)	**592** (2.8)	95 (0.9)
Dominican Republic	3 (0.4)	365 (8.8)	**388** (3.0)	97 (0.4)	2 (0.3)	381 (11.0)	382 (3.0)	98 (0.4)
Estonia[1]	9 (0.7)	516 (6.2)	**550** (3.2)	91 (0.7)	5 (0.6)	507 (8.9)	**549** (3.0)	95 (0.6)
Finland	3 (0.5)	500 (11.2)	**580** (2.3)	97 (0.5)	5 (0.5)	523 (10.6)	**580** (2.4)	95 (0.6)
Italy	11 (0.9)	489 (6.9)	**533** (2.2)	89 (0.9)	18 (1.0)	479 (5.4)	**536** (2.0)	81 (1.1)
Latvia[1]	4 (0.4)	478 (7.8)	**495** (3.0)	96 (0.4)	10 (1.5)	458 (10.2)	**498** (3.1)	90 (1.6)
Lithuania	2 (0.3)	507 (8.5)	521 (2.9)	98 (0.3)	5 (1.0)	469 (14.3)	**522** (2.9)	95 (1.2)
Malta	8 (0.4)	486 (6.3)	498 (2.9)	92 (0.4)	29 (0.7)	**506** (3.9)	488 (3.3)	71 (0.7)
Mexico	3 (0.4)	420 (13.8)	**472** (2.5)	97 (0.4)	3 (0.7)	414 (13.1)	**469** (2.5)	97 (0.7)
Netherlands†	9 (1.4)	490 (12.0)	**527** (4.3)	91 (1.4)	8 (1.2)	493 (12.4)	**526** (4.4)	92 (1.2)
Norway (9)[1]	11 (1.1)	514 (4.2)	**574** (2.3)	89 (1.1)	8 (0.7)	519 (5.7)	**570** (2.2)	91 (0.9)
Peru	2 (0.3)	362 (11.8)	**445** (3.4)	98 (0.3)	7 (1.1)	345 (7.7)	**445** (3.3)	93 (1.2)
Russian Federation	6 (0.5)	535 (7.2)	546 (4.2)	94 (0.5)	5 (0.9)	485 (9.9)	**548** (4.2)	95 (0.9)
Slovenia	15 (1.0)	498 (5.7)	**539** (2.5)	85 (1.0)	6 (0.7)	484 (6.4)	**537** (2.5)	94 (0.7)
Sweden[1]	18 (1.6)	531 (6.4)	**597** (3.0)	82 (1.6)	14 (1.2)	522 (8.3)	**592** (3.1)	83 (1.4)
ICCS 2016 average	7 (0.2)	479 (2.2)	**523** (0.7)	93 (0.2)	8 (0.2)	474 (2.3)	**522** (0.7)	92 (0.2)
Countries not meeting sample participation requirements								
Hong Kong SAR	32 (1.3)	523 (7.5)	514 (7.0)	68 (1.3)	11 (1.9)	501 (15.0)	521 (6.4)	89 (1.9)
Korea, Republic of[2]	0 (0.1)	^	553 (3.6)	100 (0.1)	0 (0.1)	^	552 (3.6)	100 (0.1)

Difference between comparison groups statistically significant at $p < 0.05$.
Difference between comparison groups is *not* statistically significant at $p < 0.05$.

Notes:
() Standard errors appear in parentheses.
^ Number of students too small to report group average scores.
Score averages that are significantly larger ($p < 0.05$) than those in the comparison group are displayed in **bold**.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.

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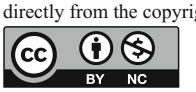
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