

APPENDIX A: SAMPLING INFORMATION AND PARTICIPATION RATES

Table A.1: Coverage of ICCS 2016 target population

Country	International target population	Exclusions from target population		
	Coverage (%)	School-level exclusions (%)	Within-sample exclusions (%)	Overall exclusions (%)
Chile	100	1.1	2.4	3.5
Colombia	100	0.2	0.2	0.4
Dominican Republic	100	1.1	0.0	1.1
Mexico	100	0.9	1.1	2.0
Peru	100	3.0	0.0	3.1

Note:

Because results are rounded to the nearest whole number, some totals may appear inconsistent.

Table A.2: Participation rates and sample sizes for student survey

Country	School participation rate (in %)			Total number of schools that participated in student survey	Student participation rate (weighted) in %	Total number of students assessed	Overall participation rate (in %)	
	Before replacement (weighted)	After replacement (weighted)	After replacement (unweighted)				Before replacement (weighted)	After replacement (weighted)
Chile	93.9	100.0	100.0	178	94.8	5081	89.0	94.8
Colombia	96.2	100.0	100.0	150	95.9	5609	92.3	95.9
Dominican Republic	96.8	100.0	100.0	141	96.6	3937	93.5	96.6
Mexico	93.5	96.7	95.9	213	95.6	5526	89.4	92.5
Peru	100.0	100.0	100.0	206	96.8	5166	96.8	96.8

APPENDIX B: STUDENT PERCENTAGES FOR DICHOTOMOUS VARIABLES

Table B.1: Percentages of students in categories for dichotomous variables used in report

Country	Gender		School location		Levels of civic knowledge		Parental education		Expected education	
	Males	Females	Rural	Urban	Civic knowledge below Level B (below 479)	Civic knowledge at or above Level B (above 479)	No parents with university degree	At least one parent with university degree	Not expecting university degree	Expecting university degree
Chile	51 (1.1)	49 (1.1)	37 (3.8)	63 (3.8)	47 (1.5)	53 (1.5)	76 (1.2)	24 (1.2)	35 (1.2)	65 (1.2)
Colombia	47 (1.3)	53 (1.3)	49 (3.5)	51 (3.5)	47 (1.8)	53 (1.8)	71 (1.5)	29 (1.5)	18 (0.8)	82 (0.8)
Dominican Republic	49 (0.9)	51 (0.9)	81 (3.1)	19 (3.1)	88 (1.0)	12 (1.0)	76 (1.2)	24 (1.2)	53 (1.4)	47 (1.4)
Mexico	50 (0.7)	50 (0.7)	52 (3.7)	48 (3.7)	54 (1.4)	46 (1.4)	75 (1.1)	25 (1.1)	25 (1.1)	75 (1.1)
Peru	52 (1.6)	48 (1.6)	65 (3.2)	35 (3.2)	65 (1.7)	35 (1.7)	73 (1.0)	27 (1.0)	36 (0.9)	64 (0.9)

APPENDIX C: ITEM MAPS

The ICCS 2016 Latin American student questionnaire used sets of items to measure constructs relevant in the field of civic and citizenship education that have region-specific importance and relevance. These items were usually sets of Likert-type items with four response categories (e.g., “strongly agree,” “agree,” “disagree,” and “strongly disagree”). The items were then recoded so that the higher scale scores reflected more positive attitudes or higher frequencies.

The Rasch Partial Credit Model (Masters & Wright, 1997) was used for scaling, and the resulting weighted likelihood estimates (Warm, 1989) were transformed into a metric with a mean of 50 and a standard deviation of 10 for equally weighted ICCS 2016 national samples that satisfied guidelines for sample participation. For scales equated to ICCS 2009, the averages and standard deviations were 50 and 10 respectively for all countries that participated in the previous survey. More details on scaling and equating procedures will be provided in the ICCS 2016 technical report (Schulz, Carstens, Losito, & Fraillon, 2018).

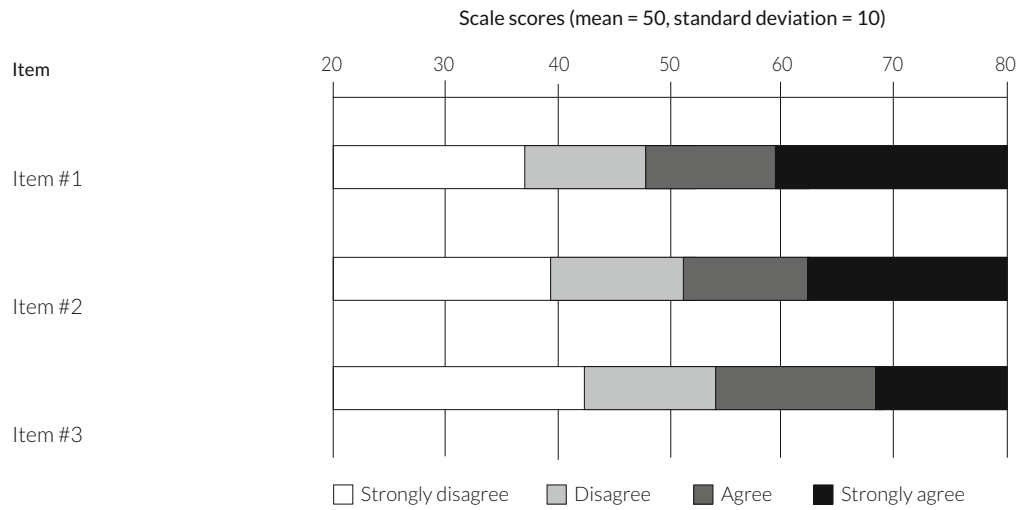
The resulting ICCS 2016 scale scores can be interpreted with regard to the average across countries participating in ICCS 2016 (or ICCS 2009 where scales were equated), but they do not reveal the extent to which students endorsed the items used for measurement. However, our application of the Rasch Partial Credit Model allowed us to map scale scores to item responses, making it possible for us to predict, for each scale score, the most likely item response for a respondent. (For an application of these properties in the previous survey, see Schulz & Friedman, 2011.)

Appendix C provides item maps for each questionnaire scale presented in the report. The maps provide a prediction of the minimum coded score (e.g., 0 = “strongly disagree,” 1 = “disagree,” 2 = “agree,” and 3 = “strongly agree”) a respondent would obtain on a Likert-type item based on their questionnaire scale score. For example, for students with a certain scale score, one could predict that they would have a 50 percent probability of at least agreeing (or strongly agreeing) with a particular item (see example item in [Figure C.1](#)). For each item, it is possible to determine Thurstonian thresholds, the points at which a minimum item score becomes more likely than any lower score and which determine the boundaries between item categories on the item map.

This information can also be summarized at the scale level by calculating the average thresholds across all of the corresponding scaled items. For four-point Likert-type scales, this was typically done for the second threshold, thereby allowing us to predict how likely it would be for a respondent with a certain scale score to have (on average across items) responses in the two lower or upper categories. Use of this approach in the case of items measuring agreement made it possible to distinguish between scale scores with which respondents were most likely to agree or disagree with the average item used for scaling.

In some of the reporting tables with national average scale scores, means are depicted as boxes that indicate their mean values plus or minus sampling error. The boxes are in graphical displays (e.g., Table 3.3 in the main body of the text) that have two underlying colors. National average scores located in the darker-shaded area indicate that, on average across items, students would have had responses in the respective lower item categories (e.g., “disagree or strongly disagree”). National average scores found in the lighter-shaded area indicate that students’ average item responses would have been in the upper item response categories (e.g., “agree or strongly agree”). Choice of thresholds between categories depended on the distributions of responses. For example, if over 80 percent of students had responded with agreement, this meant a threshold set between “strongly agree” and all other categories.

Figure C.1: Example of questionnaire item map



Example of how to interpret the item-by-score map

#1:	A respondent with score 30 has more than a 50 percent probability of strongly disagreeing with all three items
#2:	A respondent with score 40 has more than a 50 percent probability of not strongly disagreeing with Items 1 and 2 but of strongly disagreeing with Item 3
#3:	A respondent with score 50 has more than a 50 percent probability of agreeing with Item 1 and of disagreeing with Items 2 and 3
#4:	A respondent with score 60 has more than a 50 percent probability of strongly agreeing with Item 1 and of at least agreeing with Items 2 and 3
#5:	A respondent with score 70 has more than a 50 percent probability of strongly agreeing with Items 1, 2, and 3

Figure 3.1: Item map for the scale reflecting students' endorsement of authoritarian government practices

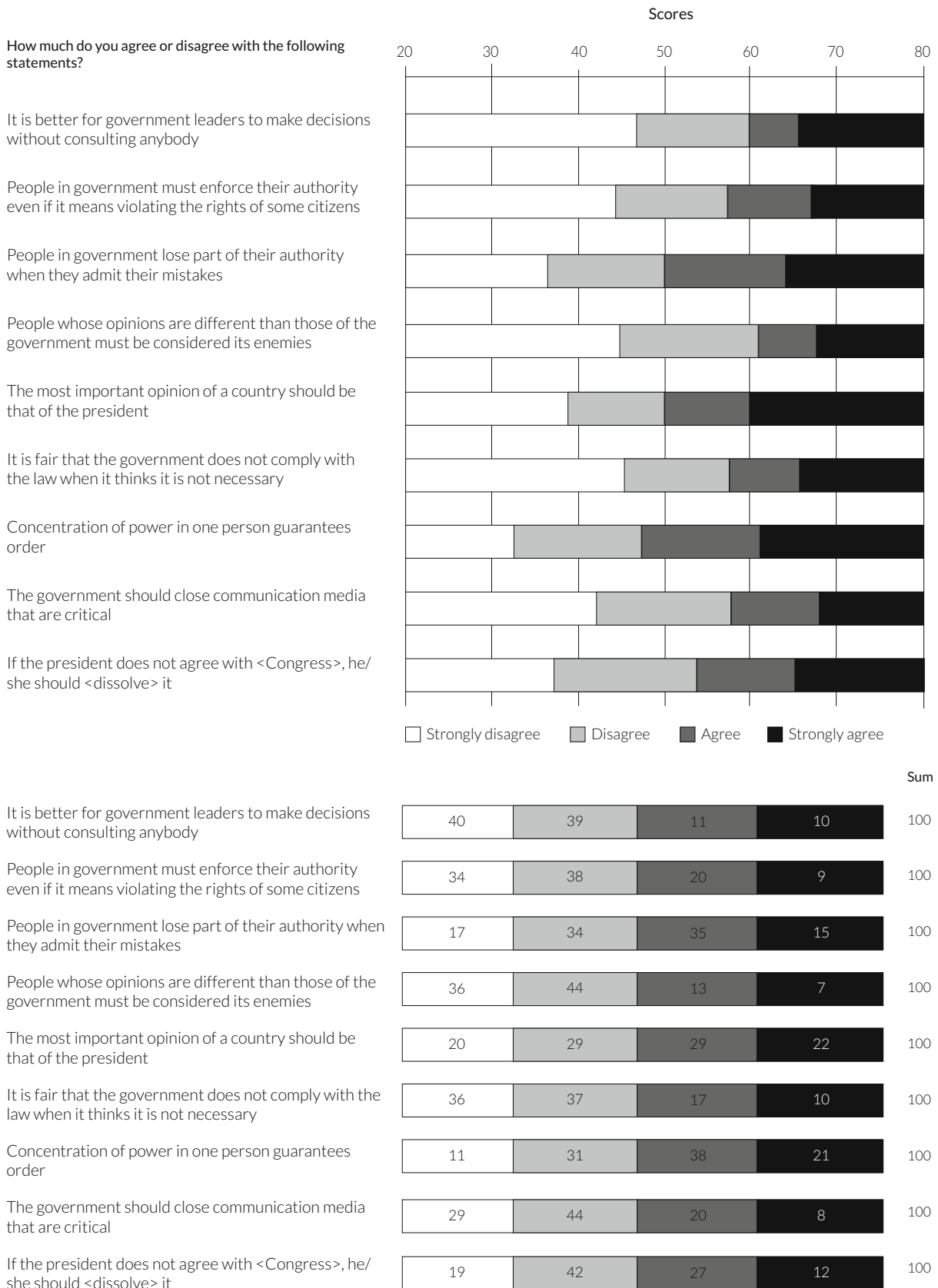
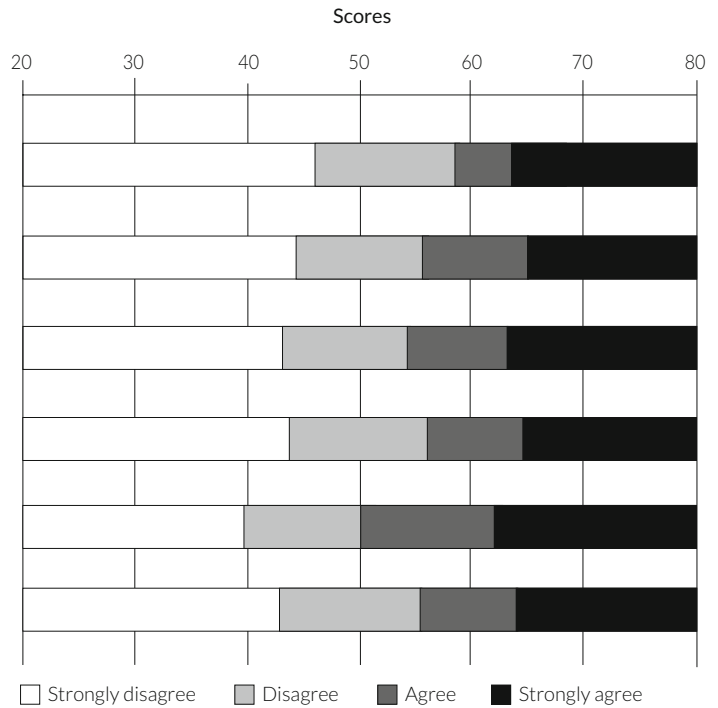


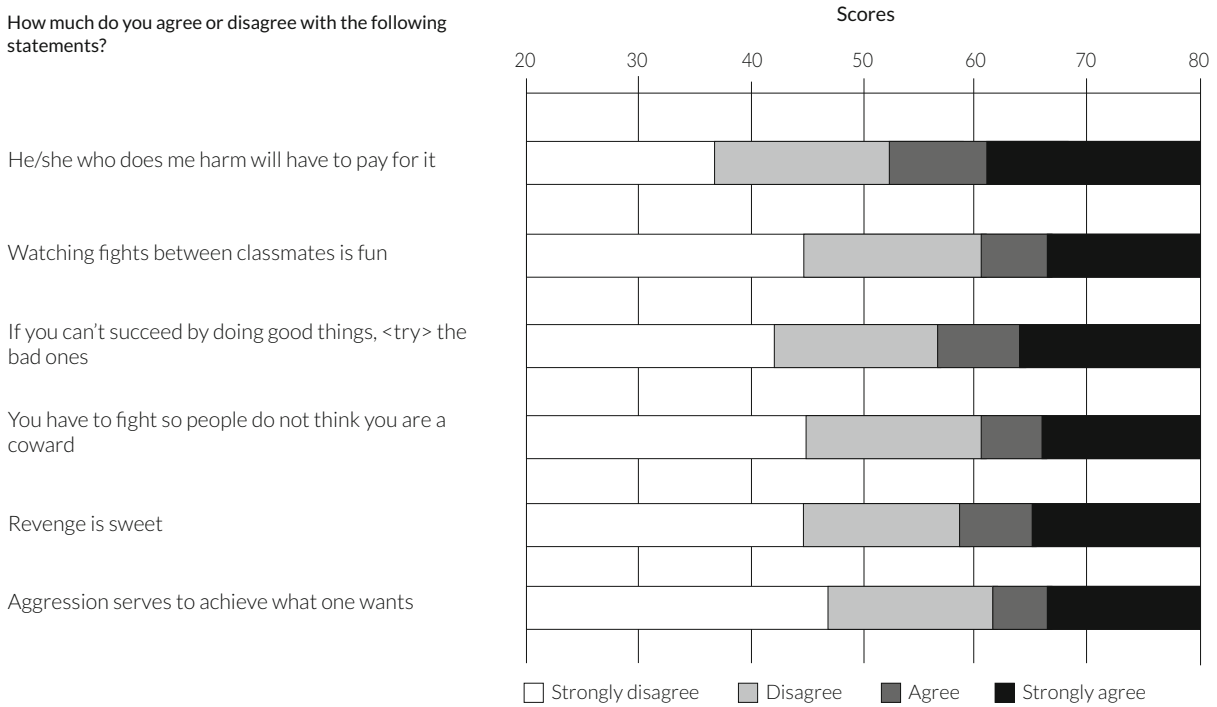
Figure 3.2: Item map for the scale reflecting students' endorsement of corrupt practices in government

How much do you agree or disagree with the following statements about the civil service and government?



Statement	Strongly disagree	Disagree	Agree	Strongly agree	Sum
It is acceptable for a civil servant to accept bribes if his/her salary is too low	33	43	14	11	100
It is acceptable for a civil servant to use the resources of the institution in which he/she works for personal benefit	28	37	24	11	100
Good candidates grant personal benefits to voters in return for their votes	25	36	26	14	100
Paying an additional amount to a civil servant in order to obtain a personal benefit is acceptable	27	40	23	11	100
It is acceptable that a civil servant helps his/her friends by giving them employment in his/her office	17	30	36	17	100
Since public resources belong to everyone, it is acceptable that whoever can keeps part of them	25	40	24	12	100

Figure 4.1: Item map for the scale reflecting students' endorsement of the use of violence



					Sum
He/she who does me harm will have to pay for it	19	42	25	15	100
Watching fights between classmates is fun	37	47	11	6	100
If you can't succeed by doing good things, <try> the bad ones	30	44	17	9	100
You have to fight so people do not think you are a coward	38	46	10	6	100
Revenge is sweet	36	43	13	7	100
Aggression serves to achieve what one wants	43	43	8	6	100

Figure 4.2: Item map for the scale reflecting students' endorsement of disobedience to the law

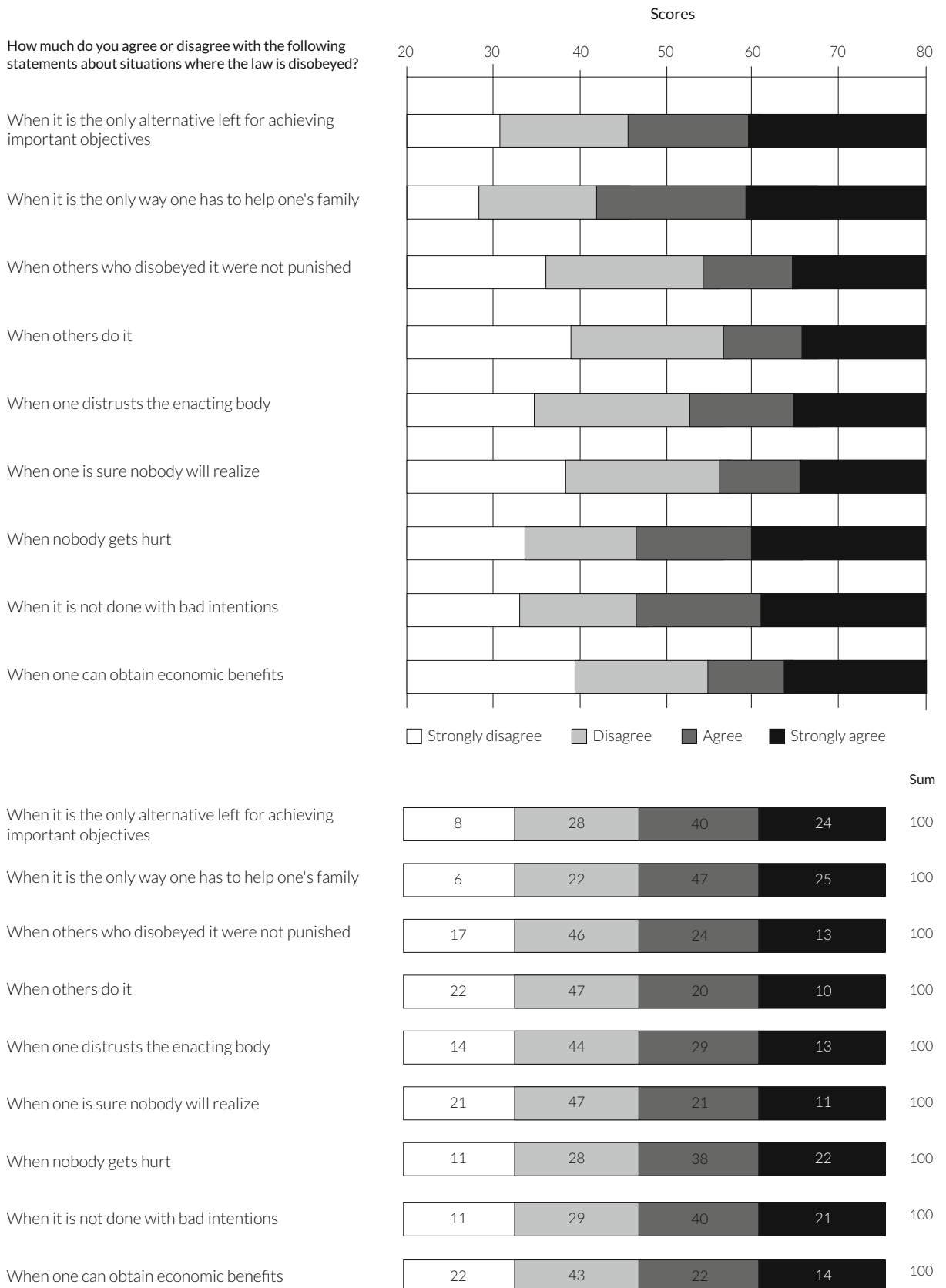


Figure 4.3: Item map for the scale reflecting students' sense of empathy with classmates

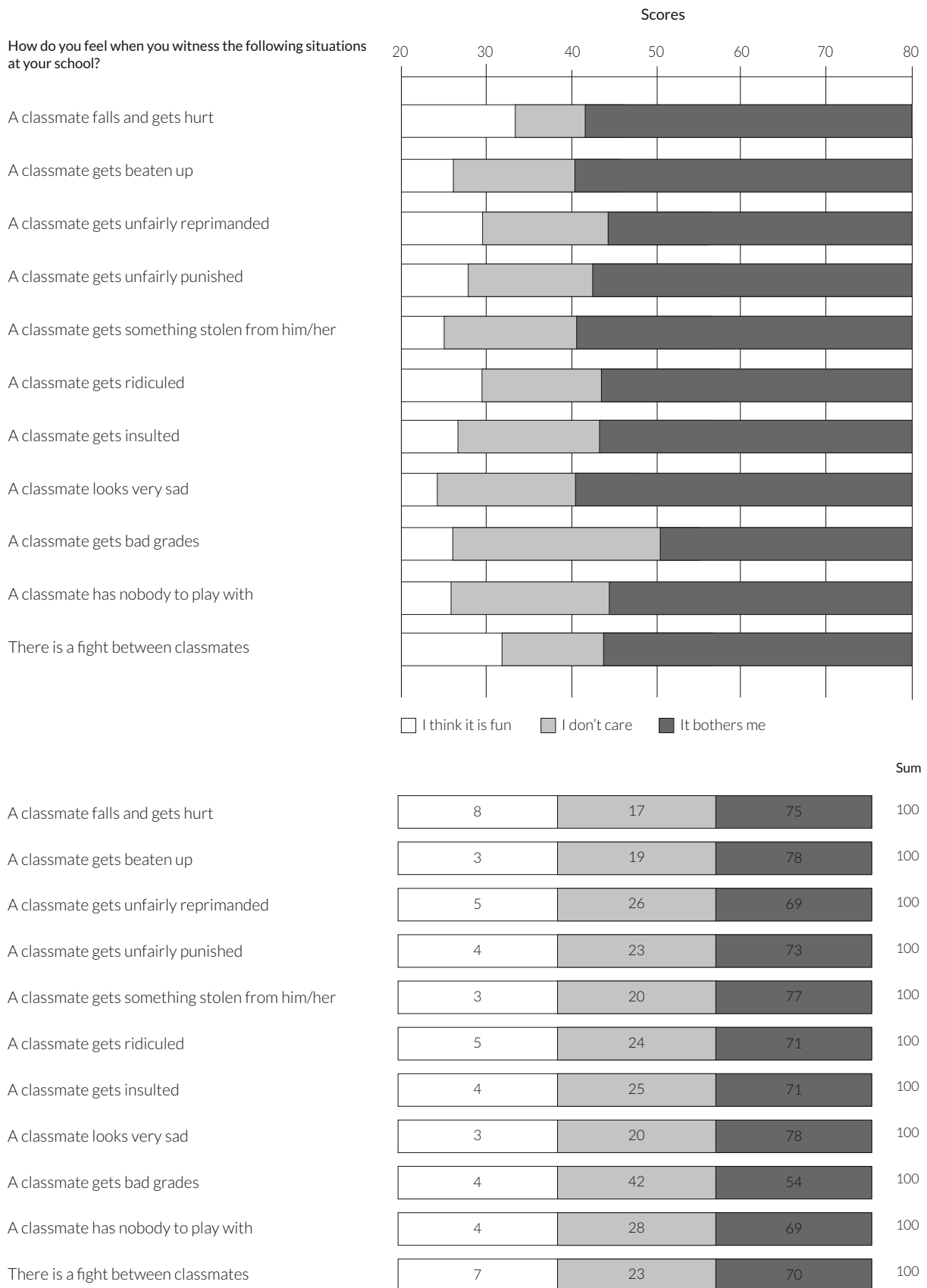
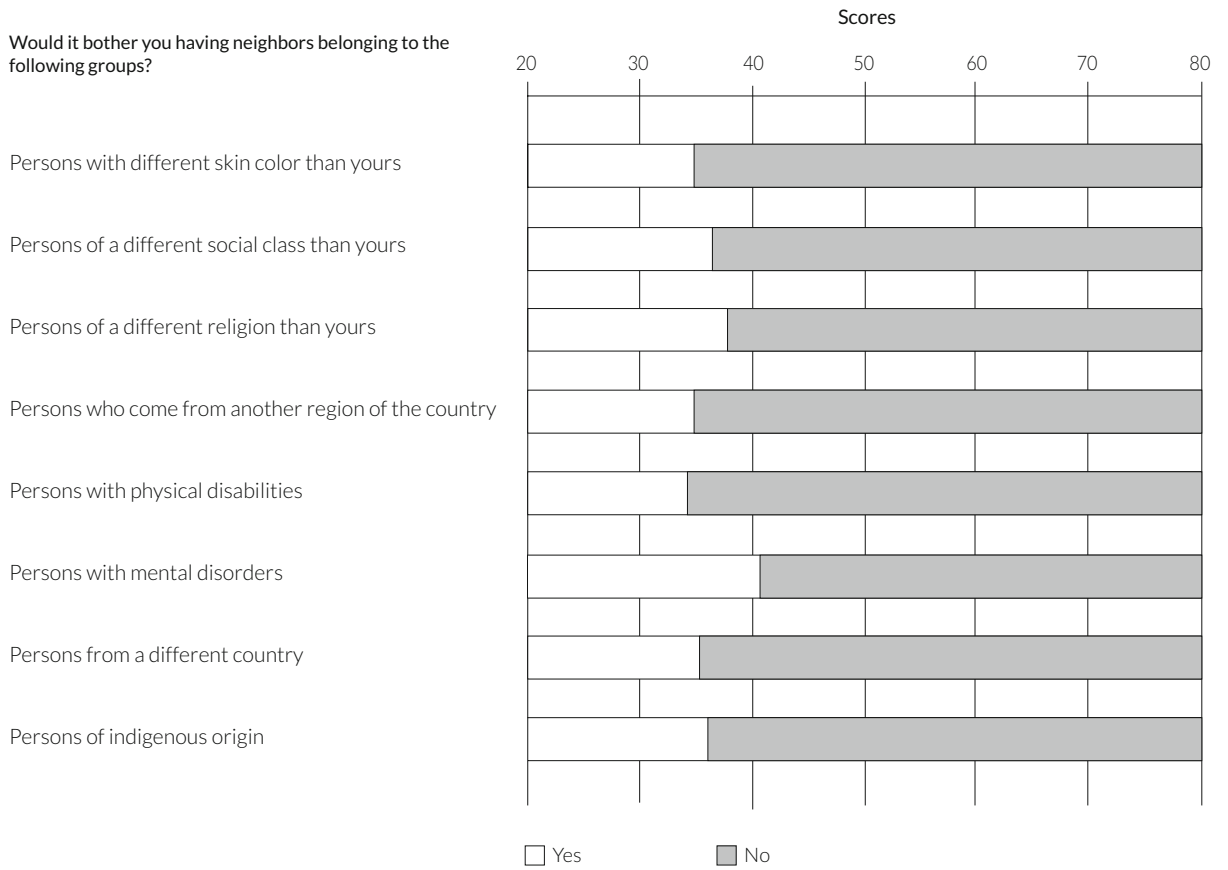
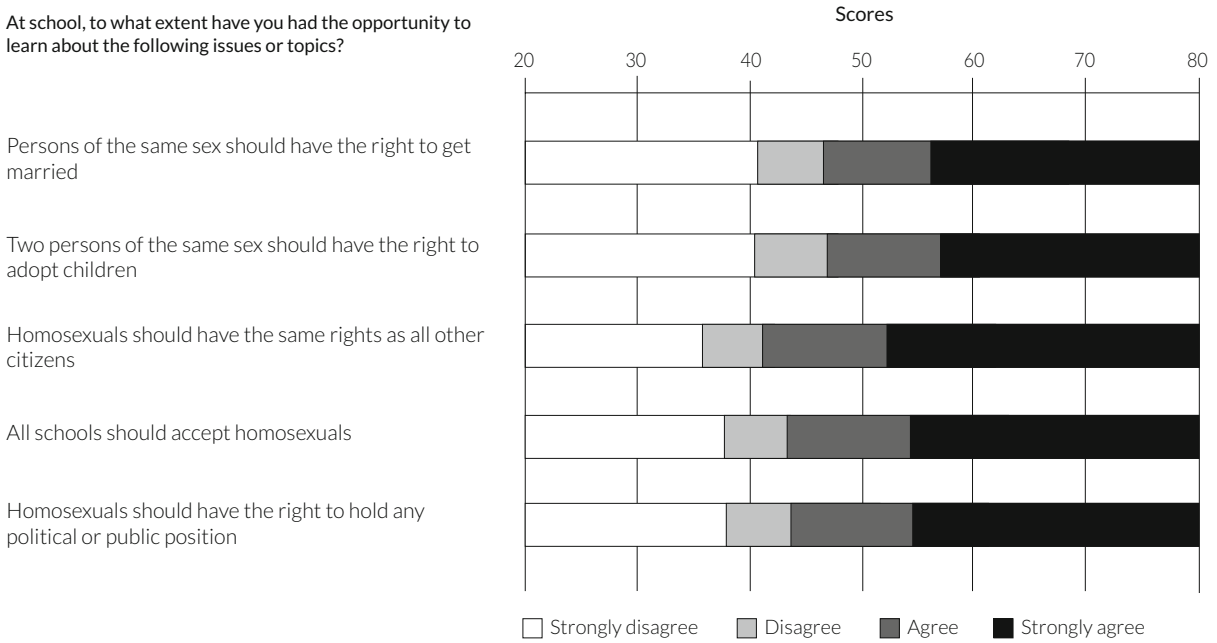


Figure 5.1: Item map for the scale reflecting students' acceptance of social minorities as neighbors



	Yes	No	Sum
Persons with different skin color than yours	12	88	100
Persons of a different social class than yours	13	87	100
Persons of a different religion than yours	15	86	100
Persons who come from another region of the country	12	88	100
Persons with physical disabilities	12	88	100
Persons with mental disorders	17	83	100
Persons from a different country	13	87	100
Persons of indigenous origin	13	87	100

Figure 5.2: Item map for the scale reflecting students' acceptance of homosexuality



					Sum
Persons of the same sex should have the right to get married	19	20	31	30	100
Two persons of the same sex should have the right to adopt children	19	21	32	28	100
Homosexuals should have the same rights as all other citizens	10	12	37	42	100
All schools should accept homosexuals	13	15	37	36	100
Homosexuals should have the right to hold any political or public position	13	16	36	35	100

References

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- Schulz, W., & Friedman, T. (2011). Scaling procedures for ICCS questionnaire items. In W. Schulz, J. Ainley, & J. Fraillon (Eds.), *ICCS 2009 technical report* (pp. 157–259). Amsterdam, the Netherlands: International Association for the Evaluation of Educational Achievement (IEA).
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APPENDIX D: ORGANIZATIONS AND INDIVIDUALS INVOLVED IN ICCS 2016

International study center

The international study center is located at the Australian Council for Educational Research (ACER). On behalf of the IEA, ACER is responsible for designing and implementing the study in close cooperation with LPS (Laboratorio di Pedagogia Sperimentale at the Roma Tre University, Rome, Italy).

Staff at ACER

Wolfram Schulz, *research director*
 Julian Fraillon, *coordinator of test development*
 John Ainley, *project researcher*
 Tim Friedman, *project researcher*
 Nora Kovarcikova, *project researcher*
 Naoko Tabata, *project researcher*
 Judy Nixon, *test development*
 Trisha Reimers, *test development*
 Eveline Gebhardt, *coordinator of data analysis*
 Louise Ockwell, *data analyst*
 Jorge Fallas, *data analyst*
 Leigh Patterson, *data analyst*
 Dulce Lay, *data analyst*
 Renee Kwong, *data analyst*

Staff at LPS

Bruno Losito, *associate research director*
 Gabriella Agrusti, *project researcher*
 Valeria Damiani, *project researcher*
 Elisa Caponera, *project researcher*
 Paola Mirti, *project researcher*
 Francesco Agrusti, *project researcher*
 Alessandro Sanzo, *project researcher*

International Association for the Evaluation of Educational Achievement (IEA)

The IEA provides overall support and supervision for ICCS. The IEA Hamburg, Germany, as the international coordinating center for ICCS, is responsible for overall coordination of all activities, relations with participating countries, and sampling and data-processing. The IEA Amsterdam, the Netherlands, is responsible for translation verification and quality monitoring of data collection.

Staff at the IEA Hamburg

Ralph Carstens, *project director*
 Marta Kostek, *project coordinator*
 Juliane Kobelt, *project coordinator*
 Falk Brese, *international data manager*
 Hannah Köhler, *international data manager*
 Christine Busch, *deputy international data manager*
 Sabine Weber, *researcher (sampling)*
 Sabine Tieck, *researcher (sampling)*
 Diego Cortes, *researcher (sampling)*
 Olaf Zuehlke, *researcher (sampling)*
 Duygu Savasci, *research analyst (sampling)*

Dirk Oehler, *research analyst*
 Tim Daniel, *research analyst*
 Michael Jung, *research analyst*
 Alena Becker, *research analyst*
 Parisa Aghakasiri, *research analyst*
 Kamil Kowolik, *research analyst*
 Svetoslav Velkov, *research analyst*
 Ekaterina Mikheeva, *research analyst*
 Clara Beyer, *research analyst*
 Oriana Mora, *research analyst*
 Maïke Junod, *programmer*
 Limiao Duan, *programmer*
 Deepti Kalamadi, *programmer*
 Bettina Wietzorek, *meeting and seminar coordinator*
 Heiko Sibberns, *director*

Staff at the IEA Amsterdam

Dirk Hastedt, *executive director*
 Paulína Koršňáková, *director (until January 2017)*
 Andrea Netten, *director (since February 2017)*
 Gabriela Noveanu, *senior researcher*
 Gillian Wilson, *publications officer*
 Roel Burgers, *financial manager*
 Isabelle Gemin, *financial officer*
 Sive Finlay, *communications officer*
 Mirjam Govaerts, *public outreach*

Project advisory committee (PAC)

The ICCS 2016 PAC has, from the beginning of the project, advised the international study center and its partner institutions during regular meetings.

PAC members

Erik Amnå, *Örebro University, Sweden*
 Cristián Cox, *Diego Portales University, Chile*
 Barbara Malak-Minkiewicz, *Netherlands*
 Judith Torney-Purta, *University of Maryland, United States*
 Wiel Veugelers, *University of Humanistic Studies, Utrecht, Netherlands*

Other project advisors

ICCS sampling referee

Marc Joncas from Statistics Canada in Ottawa was the sampling referee for the study. He provided invaluable advice on all sampling-related aspects of the study.

Experts

Christian Monseur (University of Liege, Belgium) conducted a review of test and questionnaires scaling methodology.

Cesar Guadalupe (Universidad del Pacífico, Peru) was invited by the international study center to review the draft of the Latin American report.

ICCS 2016 Latin American national research coordinators (NRCs)

The national research coordinators (NRCs) played a crucial role in the study's development. They provided policy- and content-oriented advice on developing the instruments and were responsible for the implementation of ICCS 2016 in the participating countries.

Chile

Elisa Salinas Valdivieso
Education Quality Assurance Agency

Colombia

Andrés Gutiérrez
Ximena Dueñas Herrera
Colombian Institute for the Assessment of Education (ICFES)

Dominican Republic

Massiel Cohen
Ansell Scheker
Ministry of Education

Mexico

María Antonieta-Díaz Gutiérrez
National Institute for the Evaluation of Education (INEE, México)

Peru

Humberto Perez Leon
Office of Educational Quality Measurement