



Appendices

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APPENDIX 1 PISA 2006 main study item pool characteristics

[Part 1/1]

Table A1.1 2006 Main study reading item classification

| Item | Name | Source | Language | Scale | Cluster | International % correct | SE % correct | Difficulty | Item parameters (RP=.50) | | | Thresholds (RP=.62, PISA scale) | | |
|----------|-----------------|-------------|---------------|------------------------|---------|-------------------------|--------------|------------|--------------------------|--------|--------|---------------------------------|-------|---|
| | | | | | | | | | Tau(1) | Tau(2) | Tau(3) | 1 | 2 | 3 |
| R055Q01 | Drugged Spiders | CITO | English | Interpreting | R2.UHR | 80.9 | (0.20) | -1.53 | | | | 375.9 | | |
| R055Q02 | Drugged Spiders | CITO | English | Reflecting | R2.UHR | 46.9 | (0.25) | 0.51 | | | | 538.9 | | |
| R055Q03 | Drugged Spiders | CITO | English | Interpreting | R2.UHR | 57.5 | (0.26) | -0.01 | | | | 496.9 | | |
| R055Q05 | Drugged Spiders | CITO | English | Interpreting | R2.UHR | 71.1 | (0.24) | -0.83 | | | | 431.7 | | |
| R067Q01 | Aesop | Greece | English/Greek | Interpreting | R1 | 88.1 | (0.16) | -1.86 | | | | 349.0 | | |
| R067Q04 | Aesop | Greece | English/Greek | Reflecting | R1 | 55.6 | (0.20) | 0.33 | -0.52 | 0.52 | | 463.0 | 585.3 | |
| R067Q05 | Aesop | Greece | English/Greek | Reflecting | R1 | 66.0 | (0.23) | -0.11 | 0.57 | -0.57 | | 467.1 | 511.7 | |
| R102Q04A | Shirts | CITO | English | Interpreting | R1 | 31.9 | (0.22) | 1.61 | | | | 627.3 | | |
| R102Q05 | Shirts | CITO | English | Interpreting | R1 | 43.3 | (0.24) | 0.98 | | | | 576.6 | | |
| R102Q07 | Shirts | CITO | English | Interpreting | R1 | 83.0 | (0.19) | -1.40 | | | | 386.0 | | |
| R104Q01 | Telephone | New Zealand | English | Retrieving information | R2 | 80.4 | (0.21) | -1.41 | | | | 385.3 | | |
| R104Q02 | Telephone | New Zealand | English | Retrieving information | R2 | 33.0 | (0.23) | 1.33 | | | | 604.8 | | |
| R104Q05 | Telephone | New Zealand | English | Retrieving information | R2 | 22.7 | (0.15) | 2.16 | -1.17 | 1.17 | | 571.5 | 772.2 | |
| R111Q01 | Exchange | Finland | Finnish | Interpreting | R2 | 63.4 | (0.24) | -0.37 | | | | 468.7 | | |
| R111Q02B | Exchange | Finland | Finnish | Reflecting | R2 | 33.8 | (0.18) | 1.23 | -0.76 | 0.76 | | 522.0 | 671.2 | |
| R111Q06B | Exchange | Finland | Finnish | Reflecting | R2 | 40.7 | (0.23) | 0.81 | 0.81 | -0.81 | | 545.2 | 580.9 | |
| R219Q01E | Employment | IALS | English | Interpreting | R1.UHR | 57.5 | (0.24) | 0.30 | | | | 522.6 | | |
| R219Q01T | Employment | IALS | English | Retrieving information | R1.UHR | 68.8 | (0.24) | -0.36 | | | | 469.4 | | |
| R219Q02 | Employment | IALS | English | Reflecting | R1.UHR | 79.1 | (0.21) | -1.14 | | | | 406.6 | | |
| R220Q01 | South Pole | France | French | Retrieving information | R1 | 42.2 | (0.25) | 1.03 | | | | 580.9 | | |
| R220Q02B | South Pole | France | French | Interpreting | R1 | 61.1 | (0.25) | 0.03 | | | | 500.7 | | |
| R220Q04 | South Pole | France | French | Interpreting | R1 | 58.9 | (0.25) | 0.20 | | | | 514.5 | | |
| R220Q05 | South Pole | France | French | Interpreting | R1 | 80.9 | (0.21) | -1.25 | | | | 397.8 | | |
| R220Q06 | South Pole | France | French | Interpreting | R1 | 65.9 | (0.23) | -0.21 | | | | 481.2 | | |
| R227Q01 | Optician | Switzerland | German | Interpreting | R2 | 52.1 | (0.24) | 0.23 | | | | 517.0 | | |
| R227Q02T | Optician | Switzerland | German | Retrieving information | R2 | 54.9 | (0.17) | 0.14 | -1.08 | 1.08 | | 414.8 | 603.5 | |
| R227Q03 | Optician | Switzerland | German | Reflecting | R2 | 53.2 | (0.25) | 0.26 | | | | 518.9 | | |
| R227Q06 | Optician | Switzerland | German | Retrieving information | R2 | 69.3 | (0.24) | -0.67 | | | | 444.9 | | |



[Part 1/2]

Table A1.2 2006 Main study mathematics item classification

| Item | Name | Source | Language | Scale | Cluster |
|----------|---------------------------|-----------------|----------|--------------------------|---------|
| M033Q01 | P2000 A View Room | Consortium | Dutch | Space and Shape | M2 |
| M034Q01T | P2000 Bricks | Consortium | Dutch | Space and Shape | M2 |
| M155Q01 | P2000 Population Pyramids | Consortium | Dutch | Change and Relationships | M2 |
| M155Q02T | P2000 Population Pyramids | Consortium | Dutch | Change and Relationships | M2 |
| M155Q03T | P2000 Population Pyramids | Consortium | Dutch | Space and Shape | M2 |
| M155Q04T | P2000 Population Pyramids | Consortium | Dutch | Space and Shape | M2 |
| M192Q01T | P2000 Containers | Germany | German | Space and Shape | M4 |
| M273Q01T | P2000 Pipelines | Czech Republic | Czech | Space and Shape | M3 |
| M302Q01T | Car Drive | TIMSS | English | Space and Shape | M1.UHM |
| M302Q02 | Car Drive | TIMSS | English | Change and Relationships | M1.UHM |
| M302Q03 | Car Drive | TIMSS | English | Change and Relationships | M1.UHM |
| M305Q01 | Map | Consortium | English | Change and Relationships | M4 |
| M406Q01 | Running Tracks | Consortium | English | Change and Relationships | M4 |
| M406Q02 | Running Tracks | Consortium | English | Change and Relationships | M4 |
| M408Q01T | Lotteries | Consortium | English | Change and Relationships | M3 |
| M411Q01 | Diving | Consortium | English | Change and Relationships | M2 |
| M411Q02 | Diving | Consortium | English | Uncertainty | M2 |
| M420Q01T | Transport | Consortium | English | Change and Relationships | M3 |
| M421Q01 | Height | Consortium | English | Space and Shape | M1 |
| M421Q02T | Height | Consortium | English | Space and Shape | M1 |
| M421Q03 | Height | Consortium | English | Change and Relationships | M1 |
| M423Q01 | Tossing Coins | Consortium | English | Change and Relationships | M4 |
| M442Q02 | Braille | Consortium | English | Change and Relationships | M2 |
| M446Q01 | Thermometer Cricket | Consortium | English | Space and Shape | M3 |
| M446Q02 | Thermometer Cricket | Consortium | English | Change and Relationships | M3 |
| M447Q01 | Tile Arrangement | Consortium | English | Change and Relationships | M3 |
| M462Q01T | Third Side | Sweden | English | Space and Shape | M2.UHM |
| M464Q01T | The Fence | Sweden | English | Space and Shape | M3 |
| M474Q01 | Running Time | Canada | English | Space and Shape | M2 |
| M496Q01T | Cash Withdrawal | Consortium | English | Uncertainty | M4 |
| M496Q02 | Cash Withdrawal | Consortium | English | Quantity | M4 |
| M559Q01 | Telephone Rates | Italy | English | Uncertainty | M3 |
| M564Q01 | Chair Lift | Italy | English | Quantity | M4.UHM |
| M564Q02 | Chair Lift | Italy | English | Quantity | M4.UHM |
| M571Q01 | Stop The Car | Germany | German | Quantity | M4 |
| M598Q01 | Making A Booklet | Switzerland | German | Uncertainty | M1 |
| M603Q01T | Number Check | Austria | German | Uncertainty | M4 |
| M603Q02T | Number Check | Austria | German | Uncertainty | M4 |
| M710Q01 | Forecast of Rain | Consortium | Japanese | Uncertainty | M1 |
| M800Q01 | Computer Game | Canada | English | Uncertainty | M3.UHM |
| M803Q01T | Labels | Canada | English | Quantity | M2 |
| M810Q01T | Bicycles | Canada | English | Uncertainty | M1 |
| M810Q02T | Bicycles | Canada | English | Uncertainty | M1 |
| M810Q03T | Bicycles | Canada | English | Quantity | M1 |
| M828Q01 | Carbon Dioxide | The Netherlands | English | Change and Relationships | M3 |
| M828Q02 | Carbon Dioxide | The Netherlands | English | Change and Relationships | M3 |
| M828Q03 | Carbon Dioxide | The Netherlands | English | Space and Shape | M3 |
| M833Q01T | Seeing the tower | The Netherlands | English | Space and Shape | M1 |

[Part 2/2]

Table A1.2 2006 Main study mathematics item classification

| Item | International % correct | SE % correct | Difficulty | Item parameters (RP=.50) | | | Thresholds (RP=.62, PISA scale) | | |
|----------|-------------------------|--------------|------------|--------------------------|--------|--------|---------------------------------|-------|---|
| | | | | Tau(1) | Tau(2) | Tau(3) | 1 | 2 | 3 |
| M033Q01 | 76.7 | (0.21) | -1.54 | | | | 429.6 | | |
| M034Q01T | 43.3 | (0.27) | 0.27 | | | | 571.4 | | |
| M155Q01 | 64.7 | (0.25) | -0.82 | | | | 486.2 | | |
| M155Q02T | 60.9 | (0.24) | -0.51 | 0.76 | -0.76 | | 492.6 | 528.9 | |
| M155Q03T | 19.1 | (0.18) | 1.46 | 0.10 | -0.10 | | 629.8 | 698.3 | |
| M155Q04T | 55.7 | (0.25) | -0.37 | | | | 521.5 | | |
| M192Q01T | 40.3 | (0.24) | 0.36 | | | | 578.1 | | |
| M273Q01T | 53.5 | (0.25) | -0.34 | | | | 523.3 | | |
| M302Q01T | 95.5 | (0.10) | -3.83 | | | | 251.9 | | |
| M302Q02 | 80.6 | (0.19) | -1.97 | | | | 396.7 | | |
| M302Q03 | 29.1 | (0.23) | 1.02 | | | | 629.3 | | |
| M305Q01 | 61.5 | (0.24) | -0.63 | | | | 500.8 | | |
| M406Q01 | 27.4 | (0.24) | 1.14 | | | | 639.0 | | |
| M406Q02 | 17.0 | (0.20) | 1.93 | | | | 700.5 | | |
| M408Q01T | 44.0 | (0.25) | 0.15 | | | | 561.6 | | |
| M411Q01 | 50.4 | (0.27) | -0.10 | | | | 542.2 | | |
| M411Q02 | 44.7 | (0.25) | 0.22 | | | | 567.8 | | |
| M420Q01T | 48.7 | (0.25) | -0.08 | | | | 543.4 | | |
| M421Q01 | 62.6 | (0.26) | -0.78 | | | | 489.3 | | |
| M421Q02T | 16.4 | (0.18) | 1.93 | | | | 700.5 | | |
| M421Q03 | 34.2 | (0.23) | 0.77 | | | | 610.3 | | |
| M423Q01 | 79.9 | (0.20) | -1.84 | | | | 406.5 | | |
| M442Q02 | 39.1 | (0.26) | 0.55 | | | | 592.7 | | |
| M446Q01 | 67.3 | (0.26) | -1.00 | | | | 472.2 | | |
| M446Q02 | 7.0 | (0.13) | 3.04 | | | | 786.8 | | |
| M447Q01 | 68.5 | (0.23) | -1.10 | | | | 464.3 | | |
| M462Q01T | 11.9 | (0.15) | 1.97 | 0.40 | -0.40 | | 677.6 | 728.7 | |
| M464Q01T | 24.7 | (0.23) | 1.28 | | | | 649.3 | | |
| M474Q01 | 73.6 | (0.22) | -1.36 | | | | 444.3 | | |
| M496Q01T | 50.1 | (0.25) | -0.06 | | | | 545.2 | | |
| M496Q02 | 64.0 | (0.24) | -0.85 | | | | 483.8 | | |
| M559Q01 | 63.5 | (0.24) | -0.76 | | | | 491.1 | | |
| M564Q01 | 46.9 | (0.25) | 0.11 | | | | 558.6 | | |
| M564Q02 | 46.2 | (0.25) | 0.13 | | | | 560.5 | | |
| M571Q01 | 47.4 | (0.26) | 0.06 | | | | 554.4 | | |
| M598Q01 | 59.8 | (0.25) | -0.67 | | | | 498.4 | | |
| M603Q01T | 45.0 | (0.25) | 0.15 | | | | 562.3 | | |
| M603Q02T | 34.8 | (0.25) | 0.79 | | | | 611.0 | | |
| M710Q01 | 32.3 | (0.23) | 0.84 | | | | 615.2 | | |
| M800Q01 | 89.4 | (0.15) | -2.75 | | | | 335.9 | | |
| M803Q01T | 29.6 | (0.24) | 1.10 | | | | 636.0 | | |
| M810Q01T | 61.8 | (0.25) | -0.74 | | | | 492.3 | | |
| M810Q02T | 69.0 | (0.24) | -1.18 | | | | 458.2 | | |
| M810Q03T | 19.1 | (0.18) | 1.54 | -0.03 | 0.03 | | 631.4 | 708.6 | |
| M828Q01 | 36.4 | (0.25) | 0.59 | | | | 596.4 | | |
| M828Q02 | 54.6 | (0.25) | -0.30 | | | | 526.4 | | |
| M828Q03 | 28.9 | (0.23) | 1.12 | | | | 637.8 | | |
| M833Q01T | 30.2 | (0.23) | 1.07 | | | | 633.5 | | |



[Part 1/4]

Table A1.3 2006 Main study science item classification (cognitive)

| Item | Name | Source | Language | Scale | Cluster |
|----------|---------------------|-----------|-----------|-------------------------------------|---------|
| S114Q03T | Greenhouse | CITO | Dutch | Using scientific evidence | S2 |
| S114Q04T | Greenhouse | CITO | Dutch | Using scientific evidence | S2 |
| S114Q05T | Greenhouse | CITO | Dutch | Explaining phenomena scientifically | S2 |
| S131Q02T | Good Vibrations | ACER | English | Using scientific evidence | S5 |
| S131Q04T | Good Vibrations | ACER | English | Identifying scientific issues | S5 |
| S213Q01T | Clothes | Australia | English | Identifying scientific issues | S7 |
| S213Q02 | Clothes | Australia | English | Explaining phenomena scientifically | S7 |
| S256Q01 | Spoons | TIMSS | English | Explaining phenomena scientifically | S5.UHS |
| S268Q01 | Algae | Australia | English | Identifying scientific issues | S3 |
| S268Q02T | Algae | Australia | English | Explaining phenomena scientifically | S3 |
| S268Q06 | Algae | Australia | English | Explaining phenomena scientifically | S3 |
| S269Q01 | Earth's Temperature | CITO | Dutch | Explaining phenomena scientifically | S1 |
| S269Q03T | Earth's Temperature | CITO | Dutch | Explaining phenomena scientifically | S1 |
| S269Q04T | Earth's Temperature | CITO | Dutch | Explaining phenomena scientifically | S1 |
| S304Q01 | Water | CITO | Dutch | Using scientific evidence | S6 |
| S304Q02 | Water | CITO | Dutch | Explaining phenomena scientifically | S6 |
| S304Q03A | Water | CITO | Dutch | Using scientific evidence | S6 |
| S304Q03B | Water | CITO | Dutch | Explaining phenomena scientifically | S6 |
| S326Q01 | Milk | CITO | Dutch | Using scientific evidence | S4 |
| S326Q02 | Milk | CITO | Dutch | Using scientific evidence | S4 |
| S326Q03 | Milk | CITO | Dutch | Using scientific evidence | S4 |
| S326Q04T | Milk | CITO | Dutch | Explaining phenomena scientifically | S4 |
| S408Q01 | Wild Oat Grass | ILS | Norwegian | Explaining phenomena scientifically | S4 |
| S408Q03 | Wild Oat Grass | ILS | Norwegian | Explaining phenomena scientifically | S4 |
| S408Q04T | Wild Oat Grass | ILS | Norwegian | Explaining phenomena scientifically | S4 |
| S408Q05 | Wild Oat Grass | ILS | Norwegian | Identifying scientific issues | S4 |
| S413Q04T | Plastic Age | IPN | German | Using scientific evidence | S5 |
| S413Q05 | Plastic Age | IPN | German | Using scientific evidence | S5 |
| S413Q06 | Plastic Age | IPN | German | Explaining phenomena scientifically | S5 |
| S415Q02 | Solar Panels | NIER | Japanese | Explaining phenomena scientifically | S4 |
| S415Q07T | Solar Panels | ACER | English | Identifying scientific issues | S4 |
| S415Q08T | Solar Panels | ACER | English | Identifying scientific issues | S4 |
| S416Q01 | The Moon | ILS | Norwegian | Using scientific evidence | S7 |
| S421Q01 | Big and Small | ILS | Norwegian | Explaining phenomena scientifically | S7.UHS |
| S421Q03 | Big and Small | ILS | Norwegian | Explaining phenomena scientifically | S7.UHS |
| S425Q02 | Penguin Island | ACER | English | Using scientific evidence | S7 |
| S425Q03 | Penguin Island | ACER | English | Explaining phenomena scientifically | S7 |
| S425Q04 | Penguin Island | ACER | English | Using scientific evidence | S7 |
| S425Q05 | Penguin Island | ACER | English | Identifying scientific issues | S7 |
| S426Q03 | The Grand Canyon | ACER | English | Explaining phenomena scientifically | S1 |
| S426Q05 | The Grand Canyon | ACER | English | Explaining phenomena scientifically | S1 |
| S426Q07T | The Grand Canyon | ACER | English | Identifying scientific issues | S1 |
| S428Q01 | Bacteria in Milk | IPN | German | Using scientific evidence | S6.UHS |
| S428Q03 | Bacteria in Milk | IPN | German | Using scientific evidence | S6.UHS |
| S428Q05 | Bacteria in Milk | IPN | German | Explaining phenomena scientifically | S6.UHS |
| S437Q01 | Extinguishing Fires | ACER | German | Explaining phenomena scientifically | S4 |
| S437Q03 | Extinguishing Fires | ACER | English | Explaining phenomena scientifically | S4 |
| S437Q04 | Extinguishing Fires | ACER | English | Explaining phenomena scientifically | S4 |
| S437Q06 | Extinguishing Fires | ACER | English | Explaining phenomena scientifically | S4 |
| S438Q01T | Green Parks | ACER | English | Identifying scientific issues | S6 |
| S438Q02 | Green Parks | ACER | English | Identifying scientific issues | S6 |
| S438Q03T | Green Parks | ACER | English | Identifying scientific issues | S6 |

[Part 2/4]

Table A1.3 2006 Main study science item classification (cognitive)

| Item | International % correct | SE % correct | Difficulty | Item parameters (RP=.50) | | | Thresholds (RP=.62, PISA scale) | | |
|----------|-------------------------|--------------|------------|--------------------------|--------|--------|---------------------------------|-------|---|
| | | | | Tau(1) | Tau(2) | Tau(3) | 1 | 2 | 3 |
| S114Q03T | 53.9 | (0.26) | 0.00 | | | | 529.6 | | |
| S114Q04T | 34.5 | (0.21) | 0.91 | -0.01 | 0.01 | | 568.2 | 659.3 | |
| S114Q05T | 18.9 | (0.19) | 1.93 | | | | 709.6 | | |
| S131Q02T | 46.2 | (0.26) | 0.29 | | | | 556.6 | | |
| S131Q04T | 31.1 | (0.23) | 1.18 | | | | 639.7 | | |
| S213Q01T | 47.9 | (0.26) | 0.41 | | | | 566.8 | | |
| S213Q02 | 79.4 | (0.20) | -1.39 | | | | 399.2 | | |
| S256Q01 | 87.8 | (0.16) | -2.20 | | | | 324.2 | | |
| S268Q01 | 72.5 | (0.22) | -0.83 | | | | 451.7 | | |
| S268Q02T | 36.2 | (0.24) | 1.01 | | | | 622.9 | | |
| S268Q06 | 55.2 | (0.25) | 0.10 | | | | 538.4 | | |
| S269Q01 | 57.8 | (0.25) | -0.28 | | | | 502.7 | | |
| S269Q03T | 41.2 | (0.25) | 0.59 | | | | 583.5 | | |
| S269Q04T | 34.1 | (0.23) | 0.94 | | | | 617.0 | | |
| S304Q01 | 43.6 | (0.25) | 0.42 | | | | 568.2 | | |
| S304Q02 | 62.1 | (0.25) | -0.47 | | | | 485.2 | | |
| S304Q03A | 39.0 | (0.24) | 0.76 | | | | 599.6 | | |
| S304Q03B | 50.7 | (0.26) | 0.11 | | | | 539.1 | | |
| S326Q01 | 59.0 | (0.24) | -0.16 | | | | 513.6 | | |
| S326Q02 | 63.7 | (0.25) | -0.44 | | | | 487.4 | | |
| S326Q03 | 58.3 | (0.25) | -0.18 | | | | 512.1 | | |
| S326Q04T | 23.3 | (0.22) | 1.73 | | | | 689.9 | | |
| S408Q01 | 62.9 | (0.23) | -0.35 | | | | 496.1 | | |
| S408Q03 | 30.5 | (0.23) | 1.28 | | | | 647.6 | | |
| S408Q04T | 50.7 | (0.24) | 0.25 | | | | 552.2 | | |
| S408Q05 | 42.0 | (0.24) | 0.71 | | | | 594.4 | | |
| S413Q04T | 41.4 | (0.25) | 0.59 | | | | 583.5 | | |
| S413Q05 | 65.6 | (0.24) | -0.71 | | | | 462.6 | | |
| S413Q06 | 37.8 | (0.26) | 0.81 | | | | 604.0 | | |
| S415Q02 | 78.3 | (0.21) | -1.28 | | | | 410.2 | | |
| S415Q07T | 72.1 | (0.23) | -0.80 | | | | 454.6 | | |
| S415Q08T | 57.7 | (0.25) | -0.04 | | | | 525.3 | | |
| S416Q01 | 45.4 | (0.25) | 0.54 | | | | 579.2 | | |
| S421Q01 | 39.8 | (0.26) | 0.83 | | | | 606.8 | | |
| S421Q03 | 63.0 | (0.25) | -0.42 | | | | 489.5 | | |
| S425Q02 | 45.8 | (0.25) | 0.51 | | | | 576.3 | | |
| S425Q03 | 41.4 | (0.25) | 0.68 | | | | 592.3 | | |
| S425Q04 | 30.1 | (0.23) | 1.33 | | | | 652.7 | | |
| S425Q05 | 69.0 | (0.23) | -0.73 | | | | 461.1 | | |
| S426Q03 | 67.6 | (0.24) | -0.83 | | | | 451.7 | | |
| S426Q05 | 75.8 | (0.22) | -1.26 | | | | 411.6 | | |
| S426Q07T | 61.3 | (0.23) | -0.47 | | | | 485.2 | | |
| S428Q01 | 61.7 | (0.24) | -0.46 | | | | 485.9 | | |
| S428Q03 | 71.3 | (0.24) | -1.08 | | | | 428.4 | | |
| S428Q05 | 43.9 | (0.26) | 0.44 | | | | 569.7 | | |
| S437Q01 | 72.2 | (0.23) | -0.93 | | | | 442.2 | | |
| S437Q03 | 49.4 | (0.26) | 0.33 | | | | 559.5 | | |
| S437Q04 | 58.0 | (0.24) | -0.15 | | | | 514.3 | | |
| S437Q06 | 76.0 | (0.22) | -1.15 | | | | 421.8 | | |
| S438Q01T | 83.2 | (0.19) | -1.91 | | | | 351.2 | | |
| S438Q02 | 65.6 | (0.24) | -0.64 | | | | 469.1 | | |
| S438Q03T | 38.9 | (0.25) | 0.68 | | | | 592.3 | | |



[Part 3/4]

Table A1.3 2006 Main study science item classification (cognitive)

| Item | Name | Source | Language | Scale | Cluster |
|----------|-----------------------------|----------------|---------------|-------------------------------------|---------|
| S447Q02 | Sunscreens | ACER | English | Identifying scientific issues | S5 |
| S447Q03 | Sunscreens | ACER | English | Identifying scientific issues | S5 |
| S447Q04 | Sunscreens | ACER | English | Identifying scientific issues | S5 |
| S447Q05 | Sunscreens | ACER | English | Using scientific evidence | S5 |
| S458Q01 | The Ice Mummy | ILS | Norwegian | Explaining phenomena scientifically | S6 |
| S458Q02T | The Ice Mummy | ILS | Norwegian | Using scientific evidence | S6 |
| S465Q01 | Different Climates | ILS | Norwegian | Using scientific evidence | S5 |
| S465Q02 | Different Climates | ILS | Norwegian | Explaining phenomena scientifically | S5 |
| S465Q04 | Different Climates | ILS | Norwegian | Explaining phenomena scientifically | S5 |
| S466Q01T | Forest Fires | ILS | Norwegian | Identifying scientific issues | S6.UHS |
| S466Q05 | Forest Fires | ILS | Norwegian | Using scientific evidence | S6.UHS |
| S466Q07T | Forest Fires | ILS | Norwegian | Identifying scientific issues | S6.UHS |
| S476Q01 | Heart Surgery | New Zealand | English | Explaining phenomena scientifically | S2.UHS |
| S476Q02 | Heart Surgery | New Zealand | English | Explaining phenomena scientifically | S2.UHS |
| S476Q03 | Heart Surgery | New Zealand | English | Explaining phenomena scientifically | S2.UHS |
| S477Q02 | Mary Montagu | Norway | Norwegian | Explaining phenomena scientifically | S3 |
| S477Q03 | Mary Montagu | Norway | Norwegian | Explaining phenomena scientifically | S3 |
| S477Q04 | Mary Montagu | Norway | Norwegian | Explaining phenomena scientifically | S3 |
| S478Q01 | Antibiotics | France | French | Explaining phenomena scientifically | S5 |
| S478Q02T | Antibiotics | France | French | Using scientific evidence | S5 |
| S478Q03T | Antibiotics | France | French | Explaining phenomena scientifically | S5 |
| S485Q02 | Acid Rain | Greece | English/Greek | Explaining phenomena scientifically | S1 |
| S485Q03 | Acid Rain | ACER | English | Using scientific evidence | S1 |
| S485Q05 | Acid Rain | ACER | English | Identifying scientific issues | S1 |
| S493Q01T | Physical Exercise | Switzerland | French | Explaining phenomena scientifically | S7 |
| S493Q03T | Physical Exercise | Switzerland | French | Explaining phenomena scientifically | S7 |
| S493Q05T | Physical Exercise | Switzerland | French | Explaining phenomena scientifically | S7 |
| S495Q01T | Radiotherapy | France | French | Using scientific evidence | S2 |
| S495Q02T | Radiotherapy | France | French | Using scientific evidence | S2 |
| S495Q03 | Radiotherapy | France | French | Using scientific evidence | S2 |
| S495Q04T | Radiotherapy | France | French | Identifying scientific issues | S2 |
| S498Q02T | Experimental Digestion | France | French | Identifying scientific issues | S3 |
| S498Q03 | Experimental Digestion | France | French | Identifying scientific issues | S3 |
| S498Q04 | Experimental Digestion | France | French | Using scientific evidence | S3 |
| S508Q02T | Genetically Modified Crops | United Kingdom | English | Identifying scientific issues | S1 |
| S508Q03 | Genetically Modified Crops | United Kingdom | English | Identifying scientific issues | S1 |
| S510Q01T | Magnetic Hovertrain | Belgium | Dutch | Explaining phenomena scientifically | S4 |
| S510Q04T | Magnetic Hovertrain | Belgium | Dutch | Explaining phenomena scientifically | S4 |
| S514Q02 | Development and Disaster | NIER | Japanese | Using scientific evidence | S7 |
| S514Q03 | Development and Disaster | NIER | Japanese | Explaining phenomena scientifically | S7 |
| S514Q04 | Development and Disaster | NIER | Japanese | Using scientific evidence | S7 |
| S519Q01 | Airbags | France | French | Using scientific evidence | S3 |
| S519Q02T | Airbags | France | French | Explaining phenomena scientifically | S3 |
| S519Q03 | Airbags | France | French | Identifying scientific issues | S3 |
| S521Q02 | Cooking Outdoors | ACER | English | Explaining phenomena scientifically | S2 |
| S521Q06 | Cooking Outdoors | ACER | English | Explaining phenomena scientifically | S2 |
| S524Q06T | Penicillin Manufacture | IPN | German | Using scientific evidence | S3 |
| S524Q07 | Penicillin Manufacture | IPN | German | Using scientific evidence | S3 |
| S527Q01T | Extinction of the Dinosaurs | Korea | Korean | Using scientific evidence | S1 |
| S527Q03T | Extinction of the Dinosaurs | Korea | Korean | Explaining phenomena scientifically | S1 |
| S527Q04T | Extinction of the Dinosaurs | Korea | Korean | Explaining phenomena scientifically | S1 |

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Table A1.3 2006 Main study science item classification (cognitive)

| Item | International % correct | SE % correct | Difficulty | Item parameters (RP=.50) | | | Thresholds (RP=.62, PISA scale) | | |
|----------|-------------------------|--------------|------------|--------------------------|--------|--------|---------------------------------|-------|---|
| | | | | Tau(1) | Tau(2) | Tau(3) | 1 | 2 | 3 |
| S447Q02 | 40.5 | (0.24) | 0.64 | | | | 588.7 | | |
| S447Q03 | 58.3 | (0.23) | -0.31 | | | | 499.7 | | |
| S447Q04 | 43.0 | (0.24) | 0.48 | | | | 574.0 | | |
| S447Q05 | 27.1 | (0.22) | 1.01 | 2.01 | -2.01 | | 616.4 | 629.0 | |
| S458Q01 | 16.3 | (0.19) | 2.09 | | | | 724.2 | | |
| S458Q02T | 56.2 | (0.25) | -0.18 | | | | 512.1 | | |
| S465Q01 | 50.2 | (0.22) | 0.13 | 0.09 | -0.09 | | 499.7 | 582.0 | |
| S465Q02 | 60.9 | (0.24) | -0.35 | | | | 496.8 | | |
| S465Q04 | 36.3 | (0.24) | 0.89 | | | | 612.0 | | |
| S466Q01T | 71.0 | (0.22) | -1.01 | | | | 434.9 | | |
| S466Q05 | 55.7 | (0.24) | -0.15 | | | | 515.1 | | |
| S466Q07T | 74.9 | (0.22) | -1.23 | | | | 413.8 | | |
| S476Q01 | 70.7 | (0.24) | -0.91 | | | | 444.4 | | |
| S476Q02 | 70.9 | (0.22) | -0.91 | | | | 443.7 | | |
| S476Q03 | 60.1 | (0.25) | -0.32 | | | | 499.1 | | |
| S477Q02 | 74.9 | (0.22) | -0.99 | | | | 436.4 | | |
| S477Q03 | 75.1 | (0.22) | -1.05 | | | | 431.3 | | |
| S477Q04 | 61.7 | (0.25) | -0.23 | | | | 507.1 | | |
| S478Q01 | 42.8 | (0.23) | 0.53 | | | | 577.7 | | |
| S478Q02T | 51.0 | (0.25) | 0.04 | | | | 532.5 | | |
| S478Q03T | 67.7 | (0.23) | -0.75 | | | | 459.0 | | |
| S485Q02 | 57.7 | (0.26) | -0.24 | | | | 506.3 | | |
| S485Q03 | 66.7 | (0.25) | -0.74 | | | | 460.4 | | |
| S485Q05 | 35.5 | (0.18) | 0.92 | -0.97 | 0.97 | | 513.6 | 716.9 | |
| S493Q01T | 52.6 | (0.25) | 0.17 | | | | 544.9 | | |
| S493Q03T | 82.4 | (0.18) | -1.53 | | | | 386.1 | | |
| S493Q05T | 45.1 | (0.25) | 0.57 | | | | 582.8 | | |
| S495Q01T | 42.1 | (0.24) | 0.55 | | | | 579.9 | | |
| S495Q02T | 57.6 | (0.25) | -0.18 | | | | 512.1 | | |
| S495Q03 | 38.6 | (0.26) | 0.82 | | | | 604.7 | | |
| S495Q04T | 50.2 | (0.25) | 0.18 | | | | 545.7 | | |
| S498Q02T | 46.9 | (0.24) | 0.49 | | | | 574.8 | | |
| S498Q03 | 42.6 | (0.24) | 0.68 | | | | 592.3 | | |
| S498Q04 | 59.9 | (0.25) | -0.05 | 1.03 | -1.03 | | 507.7 | 540.9 | |
| S508Q02T | 60.9 | (0.23) | -0.44 | | | | 488.1 | | |
| S508Q03 | 73.6 | (0.23) | -1.15 | | | | 421.8 | | |
| S510Q01T | 53.9 | (0.23) | 0.08 | | | | 536.2 | | |
| S510Q04T | 41.0 | (0.24) | 0.77 | | | | 600.3 | | |
| S514Q02 | 85.2 | (0.20) | -1.85 | | | | 356.2 | | |
| S514Q03 | 46.6 | (0.25) | 0.49 | | | | 574.0 | | |
| S514Q04 | 52.2 | (0.27) | 0.14 | | | | 542.0 | | |
| S519Q01 | 35.3 | (0.21) | 0.92 | -0.01 | 0.01 | | 569.7 | 660.4 | |
| S519Q02T | 52.6 | (0.25) | 0.18 | | | | 545.7 | | |
| S519Q03 | 28.7 | (0.22) | 1.39 | | | | 657.9 | | |
| S521Q02 | 55.9 | (0.24) | -0.11 | | | | 518.7 | | |
| S521Q06 | 88.1 | (0.18) | -2.14 | | | | 329.2 | | |
| S524Q06T | 64.3 | (0.24) | -0.40 | | | | 491.8 | | |
| S524Q07 | 36.5 | (0.24) | 1.04 | | | | 625.8 | | |
| S527Q01T | 16.1 | (0.18) | 2.10 | | | | 724.9 | | |
| S527Q03T | 58.0 | (0.25) | -0.25 | | | | 504.8 | | |
| S527Q04T | 53.7 | (0.24) | -0.03 | | | | 526.7 | | |



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Table A1.4 2006 Main study science embedded item classification (interest in learning science topics)

| Item | Name | Source | Language | Cluster | International % correct | SE % correct | Difficulty | Item parameters (RP=.50) | | | Thresholds (RP=.62, PISA scale) | | |
|---------|-----------------------------|--------|----------|---------|-------------------------|--------------|------------|--------------------------|--------|--------|---------------------------------|-------|-------|
| | | | | | | | | Tau(1) | Tau(2) | Tau(3) | 1 | 2 | 3 |
| S408QNA | Wild Oat Grass | ACER | English | S4 | 48.3 | (0.16) | 0.38 | -1.22 | -0.08 | 1.30 | 430.7 | 557.8 | 695.4 |
| S408QNB | Wild Oat Grass | ACER | English | S4 | 45.4 | (0.15) | 0.52 | -1.47 | -0.05 | 1.53 | 425.5 | 571.0 | 725.4 |
| S408QNC | Wild Oat Grass | ACER | English | S4 | 46.2 | (0.15) | 0.51 | -1.47 | -0.11 | 1.58 | 424.5 | 567.6 | 727.8 |
| S413QNA | Plastic Age | IPN | German | S5 | 46.1 | (0.15) | 0.48 | -1.69 | 0.00 | 1.69 | 406.0 | 570.4 | 735.1 |
| S413QNB | Plastic Age | IPN | German | S5 | 48.0 | (0.15) | 0.35 | -1.63 | -0.04 | 1.68 | 398.7 | 557.1 | 722.6 |
| S413QNC | Plastic Age | IPN | German | S5 | 38.1 | (0.16) | 0.84 | -1.27 | 0.11 | 1.16 | 471.2 | 608.0 | 729.6 |
| S416QNA | The Moon | IPN | German | S7 | 55.1 | (0.15) | -0.13 | -1.40 | -0.34 | 1.73 | 369.4 | 497.8 | 680.7 |
| S416QNB | The Moon | IPN | German | S7 | 64.6 | (0.15) | -0.65 | -1.10 | -0.36 | 1.46 | 343.4 | 452.4 | 613.0 |
| S428QNA | Bacteria in Milk | ACER | English | S6.UHS | 51.3 | (0.14) | 0.19 | -1.64 | -0.19 | 1.83 | 382.2 | 534.1 | 718.4 |
| S428QNB | Bacteria in Milk | ACER | English | S6.UHS | 51.9 | (0.15) | 0.15 | -1.64 | -0.09 | 1.73 | 379.8 | 536.2 | 708.0 |
| S428QNC | Bacteria in Milk | ACER | English | S6.UHS | 51.8 | (0.15) | 0.14 | -1.43 | -0.07 | 1.49 | 395.2 | 536.9 | 689.1 |
| S437QNA | Extinguishing Fires | ACER | English | S4 | 60.5 | (0.15) | -0.32 | -1.46 | -0.28 | 1.74 | 348.0 | 483.1 | 665.3 |
| S437QNB | Extinguishing Fires | ACER | English | S4 | 55.0 | (0.15) | -0.03 | -1.54 | -0.15 | 1.69 | 370.7 | 517.3 | 688.4 |
| S437QNC | Extinguishing Fires | ACER | English | S4 | 64.2 | (0.15) | -0.48 | -1.15 | -0.14 | 1.29 | 358.8 | 478.2 | 617.2 |
| S438QNA | Green Parks | ACER | English | S6 | 39.9 | (0.15) | 0.80 | -1.49 | 0.02 | 1.47 | 449.6 | 600.5 | 747.0 |
| S438QNB | Green Parks | ACER | English | S6 | 37.0 | (0.15) | 0.95 | -1.50 | 0.07 | 1.43 | 463.5 | 616.1 | 758.2 |
| S438QNC | Green Parks | ACER | English | S6 | 43.2 | (0.15) | 0.61 | -1.30 | -0.04 | 1.34 | 446.8 | 580.2 | 719.8 |
| S456QNA | The Cheetah | IPN | German | S2 | 58.0 | (0.14) | -0.29 | -1.69 | -0.22 | 1.91 | 335.1 | 489.0 | 682.1 |
| S456QNB | The Cheetah | IPN | German | S2 | 60.2 | (0.14) | -0.41 | -1.59 | -0.22 | 1.81 | 331.6 | 478.2 | 662.6 |
| S456QNC | The Cheetah | IPN | German | S2 | 64.1 | (0.15) | -0.58 | -1.30 | -0.19 | 1.48 | 338.6 | 467.0 | 622.8 |
| S466QNA | Forest Fires | ACER | English | S6.UHS | 59.6 | (0.14) | -0.27 | -1.61 | -0.30 | 1.90 | 342.1 | 485.9 | 682.1 |
| S466QNB | Forest Fires | ACER | English | S6.UHS | 54.6 | (0.14) | -0.09 | -1.73 | -0.03 | 1.76 | 351.1 | 517.3 | 689.5 |
| S466QNC | Forest Fires | ACER | English | S6.UHS | 65.4 | (0.15) | -0.60 | -1.19 | -0.34 | 1.53 | 341.4 | 456.6 | 622.8 |
| S476QNA | Heart Surgery | IPN | German | S2.UHS | 58.8 | (0.14) | -0.32 | -1.67 | -0.22 | 1.89 | 333.7 | 485.9 | 677.2 |
| S476QNB | Heart Surgery | IPN | German | S2.UHS | 57.6 | (0.14) | -0.27 | -1.50 | -0.05 | 1.54 | 353.6 | 501.3 | 656.6 |
| S476QNC | Heart Surgery | IPN | German | S2.UHS | 52.0 | (0.15) | 0.09 | -1.42 | -0.06 | 1.48 | 391.0 | 532.7 | 683.1 |
| S478QNA | Antibiotics | IPN | German | S5 | 59.2 | (0.14) | -0.24 | -1.47 | -0.15 | 1.62 | 357.5 | 498.5 | 663.9 |
| S478QNB | Antibiotics | IPN | German | S5 | 60.2 | (0.14) | -0.37 | -1.53 | -0.07 | 1.60 | 342.1 | 491.2 | 652.1 |
| S478QNC | Antibiotics | IPN | German | S5 | 60.9 | (0.15) | -0.31 | -1.21 | -0.12 | 1.33 | 369.4 | 494.3 | 636.0 |
| S485QNA | Acid Rain | IPN | German | S1 | 56.7 | (0.15) | -0.11 | -1.56 | -0.17 | 1.72 | 362.0 | 508.9 | 683.8 |
| S485QNB | Acid Rain | IPN | German | S1 | 56.2 | (0.16) | -0.12 | -1.38 | 0.01 | 1.37 | 376.3 | 517.3 | 656.9 |
| S485QNC | Acid Rain | IPN | German | S1 | 48.9 | (0.16) | 0.27 | -1.53 | -0.01 | 1.53 | 400.4 | 551.9 | 704.7 |
| S498QNA | Experimental Digestion | IPN | German | S3 | 46.8 | (0.14) | 0.39 | -1.62 | -0.09 | 1.71 | 402.1 | 557.8 | 728.2 |
| S498QNB | Experimental Digestion | IPN | German | S3 | 54.5 | (0.14) | -0.04 | -1.59 | -0.10 | 1.69 | 365.8 | 518.7 | 687.7 |
| S498QNC | Experimental Digestion | IPN | German | S3 | 59.3 | (0.15) | -0.28 | -1.27 | -0.27 | 1.54 | 365.8 | 489.0 | 652.7 |
| S508QNA | Genetically Modified Crops | ACER | English | S1 | 46.2 | (0.15) | 0.43 | -1.45 | -0.14 | 1.59 | 417.9 | 558.5 | 721.5 |
| S508QNB | Genetically Modified Crops | ACER | English | S1 | 46.1 | (0.15) | 0.45 | -1.42 | -0.15 | 1.56 | 422.3 | 559.9 | 720.5 |
| S508QNC | Genetically Modified Crops | ACER | English | S1 | 47.0 | (0.16) | 0.35 | -1.26 | -0.10 | 1.36 | 425.5 | 554.3 | 697.4 |
| S514QNA | Development and Disaster | ACER | English | S7 | 51.6 | (0.15) | 0.00 | -1.47 | -0.05 | 1.52 | 379.5 | 525.4 | 679.3 |
| S514QNB | Development and Disaster | ACER | English | S7 | 47.9 | (0.15) | 0.22 | -1.53 | -0.03 | 1.56 | 395.2 | 545.9 | 701.3 |
| S514QNC | Development and Disaster | ACER | English | S7 | 65.9 | (0.15) | -0.71 | -1.14 | -0.23 | 1.37 | 337.2 | 453.1 | 601.8 |
| S519QNA | Airbags | ACER | English | S3 | 71.3 | (0.13) | -1.04 | -1.49 | -0.28 | 1.77 | 282.0 | 418.9 | 602.5 |
| S519QNB | Airbags | ACER | English | S3 | 69.4 | (0.14) | -0.89 | -1.44 | -0.21 | 1.66 | 299.5 | 436.4 | 607.4 |
| S519QNC | Airbags | ACER | English | S3 | 65.7 | (0.14) | -0.66 | -1.33 | -0.06 | 1.39 | 330.9 | 465.7 | 610.2 |
| S521QNA | Cooking Outdoors | ACER | English | S2 | 40.3 | (0.14) | 0.69 | -1.56 | 0.00 | 1.55 | 435.7 | 589.9 | 743.5 |
| S521QNB | Cooking Outdoors | ACER | English | S2 | 41.1 | (0.14) | 0.65 | -1.61 | 0.01 | 1.60 | 427.6 | 586.1 | 742.8 |
| S524QNA | Penicillin Manufacture | ACER | English | S3 | 46.5 | (0.15) | 0.42 | -1.39 | -0.09 | 1.48 | 422.3 | 560.6 | 712.8 |
| S524QNB | Penicillin Manufacture | ACER | English | S3 | 51.5 | (0.16) | 0.14 | -1.29 | -0.17 | 1.46 | 403.5 | 531.3 | 684.9 |
| S524QNC | Penicillin Manufacture | ACER | English | S3 | 47.8 | (0.15) | 0.33 | -1.29 | -0.12 | 1.42 | 421.4 | 551.2 | 699.6 |
| S527QNA | Extinction of the Dinosaurs | ACER | English | S1 | 55.9 | (0.15) | -0.13 | -1.44 | -0.18 | 1.62 | 367.9 | 506.2 | 673.7 |
| S527QNB | Extinction of the Dinosaurs | ACER | English | S1 | 68.4 | (0.15) | -0.73 | -0.99 | -0.25 | 1.24 | 345.6 | 451.0 | 589.9 |
| S527QNC | Extinction of the Dinosaurs | ACER | English | S1 | 59.0 | (0.16) | -0.26 | -1.22 | -0.07 | 1.30 | 374.5 | 501.3 | 638.8 |

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Table A1.5 2006 Main study science embedded item classification (support for scientific enquiry)

| Item | Name | Source | Language | Cluster | Inter-national % correct | SE % correct | Difficulty | Item parameters (RP=.50) | | | Thresholds (RP=.62, PISA scale) | | |
|---------|-----------------------------|--------|----------|---------|--------------------------|--------------|------------|--------------------------|--------|--------|---------------------------------|-------|-------|
| | | | | | | | | Tau(1) | Tau(2) | Tau(3) | 1 | 2 | 3 |
| S408QSA | Wild Oat Grass | ACER | English | S4 | 63.7 | (0.11) | 0.59 | -1.60 | -0.91 | 2.51 | 258.8 | 405.9 | 770.3 |
| S408QSB | Wild Oat Grass | ACER | English | S4 | 60.5 | (0.12) | 0.70 | -1.77 | -0.29 | 2.06 | 267.8 | 467.9 | 738.0 |
| S408QSC | Wild Oat Grass | ACER | English | S4 | 59.2 | (0.12) | 0.88 | -1.65 | -0.58 | 2.23 | 294.6 | 466.0 | 773.9 |
| S416QSA | The Moon | IPN | German | S7 | 66.9 | (0.11) | 0.21 | -1.75 | -0.72 | 2.46 | 205.4 | 375.4 | 721.8 |
| S416QSB | The Moon | IPN | German | S7 | 70.2 | (0.11) | 0.04 | -1.55 | -0.58 | 2.13 | 206.8 | 370.0 | 666.2 |
| S416QSC | The Moon | IPN | German | S7 | 77.8 | (0.12) | -0.19 | -0.78 | -0.63 | 1.41 | 247.1 | 353.5 | 564.8 |
| S421QSA | Big and Small | ACER | English | S7.UHS | 77.2 | (0.11) | -0.25 | -0.78 | -1.03 | 1.80 | 227.3 | 319.8 | 595.2 |
| S421QSC | Big and Small | ACER | English | S7.UHS | 69.9 | (0.12) | 0.20 | -1.29 | -0.70 | 1.99 | 246.2 | 383.5 | 668.9 |
| S425QSA | Penguin Island | IPN | German | S7 | 83.1 | (0.10) | -0.58 | -0.34 | -1.15 | 1.49 | 217.5 | 285.7 | 523.4 |
| S425QSB | Penguin Island | IPN | German | S7 | 72.3 | (0.11) | -0.06 | -1.48 | -0.67 | 2.16 | 198.6 | 352.1 | 657.2 |
| S425QSC | Penguin Island | IPN | German | S7 | 61.7 | (0.12) | 0.58 | -1.84 | -0.13 | 1.96 | 249.8 | 466.9 | 714.6 |
| S426QSA | The Grand Canyon | IPN | German | S1 | 70.1 | (0.11) | 0.14 | -1.19 | -0.98 | 2.17 | 240.4 | 357.5 | 679.7 |
| S426QSB | The Grand Canyon | IPN | German | S1 | 64.1 | (0.12) | 0.43 | -1.72 | -0.25 | 1.97 | 240.8 | 440.1 | 697.6 |
| S426QSC | The Grand Canyon | IPN | German | S1 | 70.6 | (0.12) | 0.08 | -1.27 | -0.81 | 2.08 | 231.8 | 362.0 | 665.3 |
| S438QSA | Green Parks | ACER | English | S6 | 76.8 | (0.12) | -0.10 | -0.64 | -1.00 | 1.64 | 256.5 | 342.7 | 596.2 |
| S438QSB | Green Parks | ACER | English | S6 | 61.1 | (0.12) | 0.57 | -2.14 | -0.11 | 2.25 | 217.5 | 466.0 | 744.2 |
| S438QSC | Green Parks | ACER | English | S6 | 66.4 | (0.12) | 0.43 | -1.49 | -0.37 | 1.86 | 261.4 | 432.8 | 684.6 |
| S456QSA | The Cheetah | IPN | German | S2 | 78.6 | (0.11) | -0.45 | -0.87 | -1.08 | 1.95 | 196.0 | 291.1 | 588.1 |
| S456QSB | The Cheetah | IPN | German | S2 | 65.2 | (0.11) | 0.38 | -1.84 | -0.61 | 2.45 | 218.4 | 403.2 | 741.6 |
| S456QSC | The Cheetah | IPN | German | S2 | 70.4 | (0.13) | 0.11 | -1.51 | -0.23 | 1.74 | 225.6 | 406.9 | 637.0 |
| S465QSA | Different Climates | IPN | German | S5 | 69.7 | (0.11) | 0.06 | -1.66 | -0.75 | 2.41 | 196.0 | 357.5 | 699.4 |
| S465QSB | Different Climates | IPN | German | S5 | 77.8 | (0.11) | -0.25 | -0.74 | -0.95 | 1.70 | 232.3 | 325.2 | 584.6 |
| S476QSA | Heart Surgery | ACER | English | S2.UHS | 76.4 | (0.11) | -0.31 | -1.07 | -0.85 | 1.92 | 202.2 | 318.4 | 602.5 |
| S476QSB | Heart Surgery | ACER | English | S2.UHS | 87.3 | (0.10) | -0.67 | -0.51 | -0.38 | 0.88 | 220.2 | 316.7 | 462.5 |
| S476QSC | Heart Surgery | ACER | English | S2.UHS | 89.9 | (0.09) | -0.91 | 0.30 | -1.23 | 0.92 | 219.3 | 262.8 | 428.3 |
| S477QSA | Mary Montagu | ACER | English | S3 | 82.6 | (0.11) | -0.44 | -0.34 | -1.03 | 1.36 | 239.0 | 310.4 | 527.9 |
| S477QSB | Mary Montagu | ACER | English | S3 | 62.9 | (0.12) | 0.38 | -2.09 | 0.08 | 2.01 | 203.1 | 461.5 | 699.4 |
| S477QSC | Mary Montagu | ACER | English | S3 | 71.5 | (0.11) | -0.02 | -1.39 | -0.73 | 2.12 | 212.1 | 355.3 | 658.1 |
| S485QSB | Acid Rain | ACER | English | S1 | 68.3 | (0.11) | 0.14 | -1.60 | -0.68 | 2.27 | 212.5 | 374.1 | 694.0 |
| S485QSC | Acid Rain | ACER | English | S1 | 69.5 | (0.12) | 0.13 | -1.40 | -0.82 | 2.22 | 225.6 | 364.2 | 685.1 |
| S498QSA | Experimental Digestion | ACER | English | S3 | 70.7 | (0.11) | 0.02 | -1.51 | -0.73 | 2.25 | 204.9 | 356.6 | 676.9 |
| S498QSB | Experimental Digestion | ACER | English | S3 | 73.5 | (0.12) | -0.09 | -1.25 | -0.54 | 1.78 | 220.2 | 362.9 | 615.0 |
| S519QSA | Airbags | ACER | English | S3 | 80.7 | (0.11) | -0.41 | -0.86 | -0.61 | 1.48 | 214.8 | 327.8 | 546.4 |
| S519QSB | Airbags | ACER | English | S3 | 78.1 | (0.11) | -0.39 | -1.23 | -0.56 | 1.79 | 187.5 | 327.4 | 581.8 |
| S519QSC | Airbags | ACER | English | S3 | 84.9 | (0.12) | -0.50 | -0.65 | -0.31 | 0.96 | 230.1 | 338.2 | 490.3 |
| S527QSB | Extinction of the Dinosaurs | ACER | English | S1 | 76.7 | (0.11) | -0.26 | -0.94 | -0.80 | 1.75 | 220.2 | 331.1 | 590.0 |
| S527QSC | Extinction of the Dinosaurs | ACER | English | S1 | 77.9 | (0.12) | -0.23 | -0.61 | -1.02 | 1.63 | 242.6 | 326.9 | 579.2 |



APPENDIX 2 Contrast coding used in conditioning

[Part 1/7]

Table A2.1 2006 Main study contrast coding used in conditioning for the student questionnaire variables

| Variable | Var. name | Variable coding | Contrast coding | |
|---------------------------------------|-----------|---|---|-------------|
| STUDENT QUESTIONNAIRE | | | | |
| Grade Q1 | ST01Q01 | 7-14 Ungraded | (copy) (mode) | 0 1 |
| Study programme Q2 | ST02Q01 | National categories | If there is at least one school with more than one SP in a country, national study programmes are dummy coded with – national mode = 0 and – other categories = 1 | |
| Age of student | AGE | Value (decimal) Missing | (copy) (mean) | 0 1 |
| Gender Q4 | ST04Q01 | 1. Female 2. Male Missing | 10 00 11 | |
| Occupational status Mother (SEI) | BMMJ | 16-90 Missing | (copy) (mean) | 0 1 |
| Occupational status Father (SEI) | BFMJ | 16-90 Missing | (copy) (mean) | 0 1 |
| Occupational status Self (SEI) | BSMJ | 16-90 Missing | (copy) (mean) | 0 1 |
| Educational level of mother (ISCED) | MISCED | 0. None 1. ISCED 1 2. ISCED 2 3. ISCED 3B, C 4. ISCED 3A, ISCED 4 5. ISCED 5B 6. ISCED 5A, 6 Missing | 7 dummy codes with national mode as reference group | |
| Educational level of father (ISCED) | FISCED | 0. None 1. ISCED 1 2. ISCED 2 3. ISCED 3B, C 4. ISCED 3A, ISCED 4 5. ISCED 5B 6. ISCED 5A, 6 Missing | 7 dummy codes with national mode as reference group | |
| Immigration status | IMMIG | 1. Native 2. Second-Generation 3. First-Generation Missing | 000 100 010 001 | |
| Country arrival age Q11b | ST11Q04 | Value Not applicable (born in country) Missing | (copy) 0 (mean) | 0 0 1 |
| Language at home Q12 | ST12Q01 | 1. Language of test 2. Other national language 3. Other language Missing | 00000 10000 01010 00101 | |
| <Country specific wealth indicator 1> | ST13Q15 | 1. Yes 2. No Missing | 10 00 01 | |
| <Country specific wealth indicator 2> | ST13Q16 | 1. Yes 2. No Missing | 10 00 01 | |
| <Country specific wealth indicator 3> | ST13Q17 | 1. Yes 2. No Missing | 10 00 01 | |
| How many books at home Q15 | ST15Q01 | 1. 0-10 books 2. 11-25 books 3. 26-100 books 4. 101-200 books 5. 201-500 books 6. More than 500 books Missing | 6 dummy codes with national mode as reference group | |

[Part 2/7]

Table A2.1 2006 Main study contrast coding used in conditioning for the student questionnaire variables

| Variable | Var. name | Variable coding | Contrast coding | |
|--|-----------|-----------------------|-----------------|------------------------------------|
| STUDENT QUESTIONNAIRE | | | | |
| Sci info – Photosynthesis – none Q20a | ST20QA1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST20QA |
| Sci info – Photosynthesis – school Q20a | ST20QA2 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Photosynthesis – media Q20a | ST20QA3 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Photosynthesis – friends Q20a | ST20QA4 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Photosynthesis – family Q20a | ST20QA5 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Photosynthesis – Internet or books Q20a | ST20QA6 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Continents – none Q20b | ST20QB1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST20QB |
| Sci info – Continents – school Q20b | ST20QB2 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Continents – media Q20b | ST20QB3 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Continents – friends Q20b | ST20QB4 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Continents – family Q20b | ST20QB5 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Continents – Internet or books Q20b | ST20QB6 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Genes – none Q20c | ST20QC1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST20QC |
| Sci info – Genes – school Q20c | ST20QC2 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Genes – media Q20c | ST20QC3 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Genes – friends Q20c | ST20QC4 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Genes – family Q20c | ST20QC5 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Genes – Internet or books Q20c | ST20QC6 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Soundproofing – none Q20d | ST20QD1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST20QD |
| Sci info – Soundproofing – school Q20d | ST20QD2 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Soundproofing – media Q20d | ST20QD3 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Soundproofing – friends Q20d | ST20QD4 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Soundproofing – family Q20d | ST20QD5 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Soundproofing – Internet or books Q20d | ST20QD6 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Climate change – none Q20e | ST20QE1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST20QE |
| Sci info – Climate change – school Q20e | ST20QE2 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Climate change – media Q20e | ST20QE3 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Climate change – friends Q20e | ST20QE4 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Climate change – family Q20e | ST20QE5 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Climate change – Internet or books Q20e | ST20QE6 | 1. Tick 2. No Tick | 1 0 | |



[Part 3/7]

Table A2.1 2006 Main study contrast coding used in conditioning for the student questionnaire variables

| Variable | Var. name | Variable coding | Contrast coding | |
|---|-----------|-----------------------|-----------------|------------------------------------|
| STUDENT QUESTIONNAIRE | | | | |
| Sci info – Evolution – none Q20f | ST20QF1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST20QF |
| Sci info – Evolution – school Q20f | ST20QF2 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Evolution – media Q20f | ST20QF3 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Evolution – friends Q20f | ST20QF4 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Evolution – family Q20f | ST20QF5 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Evolution – Internet or books Q20f | ST20QF6 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Nuclear energy – none Q20g | ST20QG1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST20QG |
| Sci info – Nuclear energy – school Q20g | ST20QG2 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Nuclear energy – media Q20g | ST20QG3 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Nuclear energy – friends Q20g | ST20QG4 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Nuclear energy – family Q20g | ST20QG5 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Nuclear energy – Internet or books Q20g | ST20QG6 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Health – none Q20h | ST20QH1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST20QH |
| Sci info – Health – school Q20h | ST20QH2 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Health – media Q20h | ST20QH3 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Health – friends Q20h | ST20QH4 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Health – family Q20h | ST20QH5 | 1. Tick 2. No Tick | 1 0 | |
| Sci info – Health – Internet or books Q20h | ST20QH6 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Air pollution – none Q23a | ST23QA1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST23QA |
| Envr info – Air pollution – school Q23a | ST23QA2 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Air pollution – media Q23a | ST23QA3 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Air pollution – friends Q23a | ST23QA4 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Air pollution – family Q23a | ST23QA5 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Air pollution – Internet or books Q23a | ST23QA6 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Energy shortages – none Q23b | ST23QB1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST23QD |
| Envr info – Energy shortages – school Q23b | ST23QB2 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Energy shortages – media Q23b | ST23QB3 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Energy shortages – friends Q23b | ST23QB4 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Energy shortages – family Q23b | ST23QB5 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Energy shortages – Internet or books Q23b | ST23QB6 | 1. Tick 2. No Tick | 1 0 | |

[Part 4/7]

Table A2.1 2006 Main study contrast coding used in conditioning for the student questionnaire variables

| Variable | Var. name | Variable coding | Contrast coding | |
|--|-----------|---|---------------------------------|------------------------------------|
| STUDENT QUESTIONNAIRE | | | | |
| Envr info – Water shortages – none Q23e | ST23QE1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST23QE |
| Envr info – Water shortages – school Q23e | ST23QE2 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Water shortages – media Q23e | ST23QE3 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Water shortages – friends Q23e | ST23QE4 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Water shortages – family Q23e | ST23QE5 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Water shortages – Internet or books Q23e | ST23QE6 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Nuclear waste – none Q23f | ST23QF1 | 1. Tick 2. No Tick | 1 0 | Number of missing values in ST23QF |
| Envr info – Nuclear waste – school Q23f | ST23QF2 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Nuclear waste – media Q23f | ST23QF3 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Nuclear waste – friends Q23f | ST23QF4 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Nuclear waste – family Q23f | ST23QF5 | 1. Tick 2. No Tick | 1 0 | |
| Envr info – Nuclear waste – Internet or books Q23f | ST23QF6 | 1. Tick 2. No Tick | 1 0 | |
| Regular lessons – Science Q31a | ST31Q01 | 1. No time 2. Less than 2 hours 3. Up to 4 hours 4. Up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Out of school – Science Q31b | ST31Q02 | 1. No time 2. Less than 2 hours 3. Up to 4 hours 4. Up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Self study – Science Q31c | ST31Q03 | 1. No time 2. Less than 2 hours 3. Up to 4 hours 4. Up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Regular lessons – Mathematics Q31d | ST31Q04 | 1. No time 2. Less than 2 hours 3. Up to 4 hours 4. Up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Out of school – Mathematics Q31e | ST31Q05 | 1. No time 2. Less than 2 hours 3. Up to 4 hours 4. Up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Self study – Mathematics Q31f | ST31Q06 | 1. No time 2. Less than 2 hours 3. Up to 4 hours 4. Up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |



[Part 5/7]

Table A2.1 2006 Main study contrast coding used in conditioning for the student questionnaire variables

| Variable | Var. name | Variable coding | Contrast coding | |
|----------------------------------|-----------|---|---------------------------------|----------------------------|
| STUDENT QUESTIONNAIRE | | | | |
| Regular lessons – Language Q31g | ST31Q07 | 1. No time 2. Less than 2 hours 3. 2 up to 4 hours 4. 4 up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Out of school – Language Q31h | ST31Q08 | 1. No time 2. Less than 2 hours 3. 2 up to 4 hours 4. 4 up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Self study – Language Q31i | ST31Q09 | 1. No time 2. Less than 2 hours 3. 2 up to 4 hours 4. 4 up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Regular lessons – Other Q31j | ST31Q10 | 1. No time 2. Less than 2 hours 3. 2 up to 4 hours 4. 4 up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Out of school – Other Q31k | ST31Q11 | 1. No time 2. Less than 2 hours 3. 2 up to 4 hours 4. 4 up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Self study – Other Q31l | ST31Q12 | 1. No time 2. Less than 2 hours 3. 2 up to 4 hours 4. 4 up to 6 hours 5. 6 or more hours Missing | 0 1 3 5 7 (mean) | 0 0 0 0 0 1 |
| Course – Comp Sci last year Q33a | ST33Q11 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Comp Sci this year Q33a | ST33Q12 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Opt Sci last year Q33b | ST33Q21 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Opt Sci this year Q33b | ST33Q22 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Comp Bio last year Q33c | ST33Q31 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Comp Bio this year Q33c | ST33Q32 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Opt Bio last year Q33d | ST33Q41 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Opt Bio this year Q33d | ST33Q42 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |

[Part 6/7]

Table A2.1 2006 Main study contrast coding used in conditioning for the student questionnaire variables

| Variable | Var. name | Variable coding | Contrast coding | |
|--|-----------|--|-------------------------|-----------------------|
| STUDENT QUESTIONNAIRE | | | | |
| Course – Comp Phy last year Q33e | ST33Q51 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Comp Phy this year Q33e | ST33Q52 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Opt Phy last year Q33f | ST33Q61 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Opt Phy this year Q33f | ST33Q62 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Comp Chem last year Q33g | ST33Q71 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Comp Chem this year Q33g | ST33Q72 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Opt Chem last year Q33h | ST33Q81 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Course – Opt Chem this year Q33h | ST33Q82 | 1. Yes 2. No Missing | 1 0 0 | 0 0 1 |
| Self – Do well Science Q36a | ST36Q01 | 1. Very important 2. Important 3. Of little importance 4. Not important at all Missing | 3 2 1 0 0 | 0 0 0 0 1 |
| Self – Do well Maths Q36b | ST36Q02 | 1. Very important 2. Important 3. Of little importance 4. Not important at all Missing | 3 2 1 0 0 | 0 0 0 0 1 |
| Self – Do well Language Q36c | ST36Q03 | 1. Very important 2. Important 3. Of little importance 4. Not important at all Missing | 3 2 1 0 0 | 0 0 0 0 1 |
| Student information on science-related careers PISA 2006 (WLE) | CARINFO | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| School preparation for science-related careers PISA 2006 (WLE) | CARPREP | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Cultural possessions at home PISA 2006 (WLE) | CULTPOSS | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Awareness of environmental issues PISA 2006 (WLE) | ENVAWARE | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Environmental optimism PISA 2006 (WLE) | ENVOPT | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Perception of environmental issues PISA 2006 (WLE) | ENVPERC | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| General value of science PISA 2006 (WLE) | GENSCIE | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Home educational resources PISA 2006 (WLE) | HEDRES | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Index of home possessions PISA 2006 (WLE) | HOMEPOS | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Instrumental motivation in science PISA 2006 (WLE) | INSTSCIE | Value (decimal) Missing | Z-score (national) 0 | 0 1 |



[Part 7/7]

Table A2.1 2006 Main study contrast coding used in conditioning for the student questionnaire variables

| Variable | Var. name | Variable coding | Contrast coding | |
|--|-----------|----------------------------|-------------------------|-------------|
| STUDENT QUESTIONNAIRE | | | | |
| General interest in learning science PISA 2006 (WLE) | INTSCIE | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Enjoyment of science PISA 2006 (WLE) | JOYSCIE | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Personal value of science PISA 2006 (WLE) | PERSCIE | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Responsibility for sustainable development PISA 2006 (WLE) | RESPDEV | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Science Teaching – Focus on applications or models PISA 2006 (WLE) | SCAPPLY | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Science Teaching – Hands-on activities PISA 2006 (WLE) | SCHANDS | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Science activities PISA 2006 (WLE) | SCIEACT | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Science self-efficacy PISA 2006 (WLE) | SCIEEFF | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Future-oriented science motivation PISA 2006 (WLE) | SCIEFUT | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Science Teaching – Interaction PISA 2006 (WLE) | SCINTACT | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Science Teaching – Student investigations PISA 2006 (WLE) | SCINVEST | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Science self-concept PISA 2006 (WLE) | SCSCIE | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Family wealth PISA 2006 (WLE) | WEALTH | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Effort B – Effort A | DEFFORT | <0 ≥0 Missing | 0 (copy) 0 | 1 0 0 |

[Part 1/1]

Table A2.2 2006 Main study contrast coding used in conditioning for the ICT questionnaire variables

| Variable | Var. name | Variable coding | Contrast coding | |
|---|-----------|--|---------------------------------|----------------------------|
| ICT QUESTIONNAIRE | | | | |
| How long used computers IC2 | IC02Q01 | 1. Less than 1 year 2. 1 to 3 years 3. 3 to 5 years 4. 5 years or more Missing | 1 2 3 4 (mean) | 0 0 0 0 1 |
| Use computer at home IC3a | IC03Q01 | 1. Almost every day 2. Once or twice a week 3. Few times a month 4. Once a month or less 5. Never Missing | 4 3 2 1 0 (mean) | 0 0 0 0 0 1 |
| Use computer at school IC3b | IC03Q02 | 1. Almost every day 2. Once or twice a week 3. Few times a month 4. Once a month or less 5. Never Missing | 4 3 2 1 0 (mean) | 0 0 0 0 0 1 |
| Use computer other places IC3c | IC03Q03 | 1. Almost every day 2. Once or twice a week 3. Few times a month 4. Once a month or less 5. Never Missing | 4 3 2 1 0 (mean) | 0 0 0 0 0 1 |
| How well – Copy data to CD IC5e | IC05Q05 | 1. Do well by myself 2. Do with help 3. Know but can't do 4. Don't know Missing | 3 2 1 0 (mean) | 0 0 0 0 1 |
| How well – Move files IC5f | IC05Q06 | 1. Do well by myself 2. Do with help 3. Know but can't do 4. Don't know Missing | 3 2 1 0 (mean) | 0 0 0 0 1 |
| Self-confidence in ICT high level tasks PISA 2006 (WLE) | HIGHCONF | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| Self-confidence in ICT Internet tasks PISA 2006 (WLE) | INTCONF | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| ICT Internet/entertainment use PISA 2006 (WLE) | INTUSE | Value (decimal) Missing | Z-score (national) 0 | 0 1 |
| ICT program/software use PISA 2006 (WLE) | PRGUSE | Value (decimal) Missing | Z-score (national) 0 | 0 1 |



[Part 1/2]

Table A2.3 2006 Main study contrast coding used in conditioning for the parent questionnaire variables and other variables

| Variable | Var. name | Variable coding | Contrast coding | |
|---|-----------|---|-----------------|---|
| PARENT QUESTIONNAIRE | | | | |
| Completed Quest – Mother Q1a | PA01Q01 | 1. Yes | 000 | |
| Completed Quest – Father Q1b | PA01Q02 | 1. Yes | 101 | |
| Completed Quest – Other Q1c | PA01Q03 | 1. Yes | 011 | |
| | | Missing | 001 | |
| Education cost Q9 | PA09Q01 | 1. Less than A | 0 | 0 |
| | | 2. A or more – less than B | 1 | 0 |
| | | 3. B or more – less than C | 2 | 0 |
| | | 4. C or more – less than D | 3 | 0 |
| | | 5. D or more | 4 | 0 |
| | | Missing | (median) | 1 |
| Father age Q10a | PA10Q01 | 1. Younger than 36 | 0 | 0 |
| | | 2. 36 to 40 years | 1 | 0 |
| | | 3. 41 to 45 years | 2 | 0 |
| | | 4. 46 to 50 years | 3 | 0 |
| | | 5. 51 years or older | 4 | 0 |
| | | Missing | (median) | 1 |
| Mother age Q10b | PA10Q02 | 1. Younger than 36 | 0 | 0 |
| | | 2. 36 to 40 years | 1 | 0 |
| | | 3. 41 to 45 years | 2 | 0 |
| | | 4. 46 to 50 years | 3 | 0 |
| | | 5. 51 years or older | 4 | 0 |
| | | Missing | (median) | 1 |
| PQ Occupational status Father (SEI) | PQBFMJ | 16-90 | (copy) | 0 |
| | | Missing | (mean) | 1 |
| PQ Educational level of father (ISCED) | PQFISCED | 0. Below ISCED 3A | 00000 | |
| | | 1. ISCED 3A | 10000 | |
| | | 2. ISCED 4 | 01000 | |
| | | 3. ISCED 5B | 00100 | |
| | | 4. ISCED 5A or 6 | 00010 | |
| | | Missing | 00001 | |
| PQ Occupational status Mother (SEI) | PQBMMJ | 16-90 | (copy) | 0 |
| | | Missing | (mean) | 1 |
| PQ Educational level of mother (ISCED) | PQMISCED | 0. Below ISCED 3A | 00000 | |
| | | 1. ISCED 3A | 10000 | |
| | | 2. ISCED 4 | 01000 | |
| | | 3. ISCED 5B | 00100 | |
| | | 4. ISCED 5A or 6 | 00010 | |
| | | Missing | 00001 | |
| Household income (relative to median) Q15 | PA15Q01 | 1. Less than < 0.5 median > | 0 | 0 |
| | | 2. < 0.5 median > or more but less than < 0.75 median > | 1 | 0 |
| | | 3. < 0.75 median > or more but less than < median > | 2 | 0 |
| | | 4. < median > or more but less than < 1.25 median > | 3 | 0 |
| | | 5. < 1.25 median > or more but less than < 1.5 median > | 4 | 0 |
| | | 6. < 1.5 median > or more | 5 | 0 |
| | | Missing | (median) | 1 |

[Part 2/2]

Table A2.3 2006 Main study contrast coding used in conditioning for the parent questionnaire variables and other variables

| Variable | Var. name | Variable coding | Contrast coding | |
|--|-----------|--------------------------|--|---|
| PARENT QUESTIONNAIRE | | | | |
| PQ Perception of environmental issues PISA 2006 (WLE) | PQENPERC | Value (decimal) | (copy) | 0 |
| | | Missing | (mean) | 1 |
| PQ Environmental optimism PISA 2006 (WLE) | PQENVOPT | Value (decimal) | (copy) | 0 |
| | | Missing | (mean) | 1 |
| PQ General value of science PISA 2006 (WLE) | PQGENSCI | Value (decimal) | (copy) | 0 |
| | | Missing | (mean) | 1 |
| PQ Personal value of science PISA 2006 (WLE) | PQPERSCI | Value (decimal) | (copy) | 0 |
| | | Missing | (mean) | 1 |
| Parents reports on science career motivation PISA 2006 (WLE) | PQSCCAR | Value (decimal) | (copy) | 0 |
| | | Missing | (mean) | 1 |
| Parents perception of school quality PISA 2006 (WLE) | PQSCHOOL | Value (decimal) | (copy) | 0 |
| | | Missing | (mean) | 1 |
| Science activities at age 10 PISA 2006 (WLE) | PQSCIACT | Value (decimal) | (copy) | 0 |
| | | Missing | (mean) | 1 |
| Parents view – importance of science PISA 2006 (WLE) | PQSCIMP | Value (decimal) | (copy) | 0 |
| | | Missing | (mean) | 1 |
| OTHER VARIABLES | | | | |
| Booklet number | BOOKID | 1 | 01 00 00 00 00 00 00 00 00 00 00 | |
| | | 2 | 00 01 00 00 00 00 00 00 00 00 00 | |
| | | 3 | 00 00 01 00 00 00 00 00 00 00 00 | |
| | | 4 | 00 00 00 01 00 00 00 00 00 00 00 | |
| | | 5 | 00 00 00 00 01 00 00 00 00 00 00 | |
| | | 6 | 00 00 00 00 00 01 00 00 00 00 00 | |
| | | 7 | 00 00 00 00 00 00 01 00 00 00 00 | |
| | | 8 | 00 00 00 00 00 00 00 01 00 00 00 | |
| | | 9 | 00 00 00 00 00 00 00 00 01 00 00 | |
| | | 10 | 00 00 00 00 00 00 00 00 00 01 00 | |
| | | 11 | -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 | |
| | | 12 | 00 00 00 00 00 00 00 00 00 01 00 | |
| | | 13 | 00 00 00 00 00 00 00 00 00 00 01 | |
| School identification number | SCHOOLID | Unique 5-digit school ID | Total number of schools minus one dummies are created for school membership. A school with the highest number of students is made the reference school in a country (a string of zeros). | |



APPENDIX 3 Design effect tables

[Part 1/1]

Table A3.1 Standard errors of the student performance mean estimate by country, by domain and cycle

| | PISA 2000 | | | PISA 2003 | | | PISA 2006 | | |
|--------------------|-----------|-------------|---------|-----------|-------------|---------|-----------|-------------|---------|
| | Reading | Mathematics | Science | Reading | Mathematics | Science | Reading | Mathematics | Science |
| Albania | 3.29 | 3.08 | 2.89 | | | | | | |
| Argentina | 9.86 | 9.38 | 8.56 | | | | 7.17 | 6.24 | 6.08 |
| Australia | 3.52 | 3.49 | 3.47 | 2.13 | 2.15 | 2.10 | 2.06 | 2.24 | 2.26 |
| Austria | 2.40 | 2.51 | 2.55 | 3.76 | 3.27 | 3.44 | 4.08 | 3.74 | 3.92 |
| Azerbaijan | | | | | | | 3.12 | 2.26 | 2.75 |
| Belgium | 3.56 | 3.90 | 4.29 | 2.58 | 2.29 | 2.48 | 3.04 | 2.95 | 2.48 |
| Brazil | 3.10 | 3.71 | 3.26 | 4.58 | 4.83 | 4.35 | 3.74 | 2.93 | 2.79 |
| Bulgaria | 4.89 | 5.66 | 4.64 | | | | 6.91 | 6.13 | 6.11 |
| Canada | 1.56 | 1.40 | 1.57 | 1.75 | 1.82 | 2.02 | 2.44 | 1.97 | 2.03 |
| Chile | 3.59 | 3.71 | 3.48 | | | | 4.99 | 4.58 | 4.32 |
| Colombia | | | | | | | 5.08 | 3.78 | 3.37 |
| Croatia | | | | | | | 2.81 | 2.37 | 2.45 |
| Czech Republic | 2.37 | 2.78 | 2.43 | 3.46 | 3.55 | 3.38 | 4.18 | 3.55 | 3.48 |
| Denmark | 2.35 | 2.44 | 2.81 | 2.82 | 2.74 | 2.97 | 3.18 | 2.62 | 3.11 |
| Estonia | | | | | | | 2.93 | 2.75 | 2.52 |
| Finland | 2.58 | 2.15 | 2.48 | 1.64 | 1.87 | 1.92 | 2.15 | 2.30 | 2.02 |
| France | 2.73 | 2.71 | 3.18 | 2.68 | 2.50 | 2.99 | 4.06 | 3.17 | 3.36 |
| Germany | 2.47 | 2.52 | 2.43 | 3.39 | 3.32 | 3.64 | 4.41 | 3.87 | 3.80 |
| Greece | 4.97 | 5.58 | 4.89 | 4.10 | 3.90 | 3.82 | 4.04 | 2.97 | 3.23 |
| Hong Kong-China | 2.93 | 3.26 | 3.01 | 3.69 | 4.54 | 4.26 | 2.42 | 2.67 | 2.47 |
| Hungary | 3.95 | 4.01 | 4.17 | 2.47 | 2.84 | 2.77 | 3.28 | 2.89 | 2.68 |
| Iceland | 1.45 | 2.25 | 2.17 | 1.56 | 1.42 | 1.47 | 1.95 | 1.81 | 1.64 |
| Indonesia | 3.99 | 4.54 | 3.94 | 3.38 | 3.91 | 3.21 | 5.92 | 5.63 | 5.73 |
| Ireland | 3.24 | 2.72 | 3.18 | 2.63 | 2.45 | 2.69 | 3.54 | 2.79 | 3.19 |
| Israel | 8.47 | 9.31 | 9.01 | | | | 4.58 | 4.35 | 3.71 |
| Italy | 2.91 | 2.93 | 3.05 | 3.04 | 3.08 | 3.13 | 2.43 | 2.28 | 2.02 |
| Japan | 5.21 | 5.49 | 5.48 | 3.92 | 4.02 | 4.14 | 3.65 | 3.34 | 3.37 |
| Jordan | | | | | | | 3.27 | 3.30 | 2.84 |
| Korea | 2.42 | 2.76 | 2.69 | 3.09 | 3.24 | 3.54 | 3.81 | 3.76 | 3.36 |
| Kyrgyzstan | | | | | | | 3.48 | 3.41 | 2.93 |
| Latvia | 5.27 | 4.46 | 5.62 | 3.67 | 3.69 | 3.89 | 3.73 | 3.03 | 2.97 |
| Liechtenstein | 4.12 | 6.99 | 7.09 | 3.58 | 4.12 | 4.33 | 3.91 | 4.21 | 4.10 |
| Lithuania | | | | | | | 2.98 | 2.93 | 2.76 |
| Luxembourg | 1.59 | 1.99 | 2.32 | 1.48 | 0.97 | 1.50 | 1.28 | 1.07 | 1.05 |
| Macao-China | | | | 2.16 | 2.89 | 3.03 | 1.10 | 1.30 | 1.06 |
| Macedonia | 1.93 | 2.72 | 2.10 | | | | | | |
| Mexico | 3.31 | 3.36 | 3.18 | 4.09 | 3.64 | 3.49 | 3.06 | 2.93 | 2.71 |
| Montenegro | | | | | | | 1.22 | 1.37 | 1.06 |
| Netherlands | 3.35 | 3.61 | 4.01 | 2.85 | 3.13 | 3.15 | 2.92 | 2.59 | 2.74 |
| New Zealand | 2.78 | 3.14 | 2.40 | 2.46 | 2.26 | 2.35 | 2.99 | 2.39 | 2.69 |
| Norway | 2.80 | 2.77 | 2.75 | 2.78 | 2.38 | 2.87 | 3.18 | 2.64 | 3.11 |
| Peru | 4.42 | 4.33 | 4.13 | | | | | | |
| Poland | 4.46 | 5.48 | 5.12 | 2.88 | 2.50 | 2.86 | 2.79 | 2.44 | 2.34 |
| Portugal | 4.52 | 4.08 | 4.00 | 3.73 | 3.40 | 3.46 | 3.56 | 3.07 | 3.02 |
| Qatar | | | | | | | 1.20 | 1.02 | 0.86 |
| Romania | | | | | | | 4.69 | 4.21 | 4.20 |
| Russian Federation | 4.16 | 5.46 | 4.74 | 3.94 | 4.20 | 4.14 | 4.32 | 3.87 | 3.67 |
| Serbia | | | | 3.56 | 3.75 | 3.50 | 3.46 | 3.51 | 3.04 |
| Slovak Republic | | | | 3.12 | 3.35 | 3.71 | 3.06 | 2.82 | 2.59 |
| Slovenia | | | | | | | 0.99 | 1.04 | 1.11 |
| Spain | 2.71 | 3.12 | 2.95 | 2.60 | 2.41 | 2.61 | 2.23 | 2.33 | 2.57 |
| Sweden | 2.20 | 2.46 | 2.51 | 2.42 | 2.56 | 2.72 | 3.44 | 2.41 | 2.37 |
| Switzerland | 4.25 | 4.38 | 4.44 | 3.28 | 3.38 | 3.69 | 3.06 | 3.15 | 3.16 |
| Chinese Taipei | | | | | | | 3.38 | 4.10 | 3.57 |
| Thailand | 3.24 | 3.60 | 3.06 | 2.81 | 3.00 | 2.70 | 2.59 | 2.34 | 2.14 |
| Tunisia | | | | 2.81 | 2.54 | 2.56 | 4.02 | 3.96 | 2.96 |
| Turkey | | | | 5.79 | 6.74 | 5.89 | 4.21 | 4.90 | 3.84 |
| United Kingdom | 2.56 | 2.50 | 2.69 | 2.46 | 2.43 | 2.52 | 2.26 | 2.14 | 2.29 |
| United States | 7.05 | 7.64 | 7.31 | 3.22 | 2.95 | 3.08 | | 4.02 | 4.22 |
| Uruguay | | | | 3.43 | 3.29 | 2.90 | 3.43 | 2.61 | 2.75 |

Central tendency indices on the 35 countries that participated in the three surveys

| | | | | | | | | | |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Median | 3.10 | 3.26 | 3.18 | 2.88 | 3.00 | 3.08 | 3.18 | 2.89 | 2.79 |
| Mean | 3.32 | 3.61 | 3.58 | 3.00 | 2.99 | 3.08 | 3.23 | 2.92 | 2.92 |

[Part 1/1]

Table A3.2 Sample sizes by country and cycle

| | PISA 2000 | | | PISA 2003 | | | PISA 2006 | | |
|--|--------------------|-----------------------------|-----------------------------------|--------------------|-----------------------------|-----------------------------------|--------------------|-----------------------------|-----------------------------------|
| | School sample size | Overall student sample size | Average within-school sample size | School sample size | Overall student sample size | Average within-school sample size | School sample size | Overall student sample size | Average within-school sample size |
| Albania | 174 | 4980 | 28.6 | | | | | | |
| Argentina | 156 | 3983 | 25.5 | | | | 176 | 4339 | 24.7 |
| Australia | 231 | 5176 | 22.4 | 321 | 12551 | 39.1 | 356 | 14170 | 39.8 |
| Austria | 213 | 4745 | 22.3 | 193 | 4597 | 23.8 | 199 | 4927 | 24.8 |
| Azerbaijan | | | | | | | 171 | 5184 | 30.3 |
| Belgium | 216 | 6670 | 30.9 | 277 | 8796 | 31.8 | 269 | 8857 | 32.9 |
| Brazil | 324 | 4893 | 15.1 | 228 | 4452 | 19.5 | 625 | 9295 | 14.9 |
| Bulgaria | 160 | 4657 | 29.1 | | | | 180 | 4498 | 25.0 |
| Canada | 1117 | 29687 | 26.6 | 1087 | 27953 | 25.7 | 896 | 22646 | 25.3 |
| Chile | 179 | 4889 | 27.3 | | | | 173 | 5233 | 30.2 |
| Colombia | | | | | | | 165 | 4478 | 27.1 |
| Croatia | | | | | | | 161 | 5213 | 32.4 |
| Czech Republic | 229 | 5365 | 23.4 | 260 | 6320 | 24.3 | 245 | 5932 | 24.2 |
| Denmark | 225 | 4235 | 18.8 | 206 | 4218 | 20.5 | 211 | 4532 | 21.5 |
| Estonia | | | | | | | 169 | 4865 | 28.8 |
| Finland | 155 | 4864 | 31.4 | 197 | 5796 | 29.4 | 155 | 4714 | 30.4 |
| France | 177 | 4673 | 26.4 | 170 | 4300 | 25.3 | 182 | 4716 | 25.9 |
| Germany | 219 | 5073 | 23.2 | 216 | 4660 | 21.6 | 226 | 4891 | 21.6 |
| Greece | 157 | 4672 | 29.8 | 171 | 4627 | 27.1 | 190 | 4873 | 25.6 |
| Hong Kong-China | 140 | 4405 | 31.5 | 145 | 4478 | 30.9 | 146 | 4645 | 31.8 |
| Hungary | 194 | 4887 | 25.2 | 253 | 4765 | 18.8 | 189 | 4490 | 23.8 |
| Iceland | 130 | 3372 | 25.9 | 129 | 3350 | 26.0 | 139 | 3789 | 27.3 |
| Indonesia | 290 | 7368 | 25.4 | 346 | 10761 | 31.1 | 352 | 10647 | 30.2 |
| Ireland | 139 | 3854 | 27.7 | 145 | 3880 | 26.8 | 165 | 4585 | 27.8 |
| Israel | 165 | 4498 | 27.3 | | | | 149 | 4584 | 30.8 |
| Italy | 172 | 4984 | 29.0 | 406 | 11639 | 28.7 | 799 | 21773 | 27.3 |
| Japan | 135 | 5256 | 38.9 | 144 | 4707 | 32.7 | 185 | 5952 | 32.2 |
| Jordan | | | | | | | 210 | 6509 | 31.0 |
| Korea | 146 | 4982 | 34.1 | 149 | 5444 | 36.5 | 154 | 5176 | 33.6 |
| Kyrgyzstan | | | | | | | 201 | 5904 | 29.4 |
| Latvia | 154 | 3893 | 25.3 | 157 | 4627 | 29.5 | 176 | 4719 | 26.8 |
| Liechtenstein | 11 | 314 | 28.5 | 12 | 332 | 27.7 | 12 | 339 | 28.3 |
| Lithuania | | | | | | | 197 | 4744 | 24.1 |
| Luxembourg | 24 | 3528 | 147.0 | 29 | 3923 | 135.3 | 31 | 4567 | 147.3 |
| Macao-China | | | | 39 | 1250 | 32.1 | 43 | 4760 | 110.7 |
| Macedonia | 91 | 4510 | 49.6 | | | | | | |
| Mexico | 183 | 4600 | 25.1 | 1124 | 29983 | 26.7 | 1140 | 30971 | 27.2 |
| Montenegro | | | | | | | 51 | 4455 | 87.4 |
| Netherlands | 100 | 2503 | 25.0 | 154 | 3992 | 25.9 | 185 | 4871 | 26.3 |
| New Zealand | 153 | 3667 | 24.0 | 173 | 4511 | 26.1 | 170 | 4823 | 28.4 |
| Norway | 176 | 4147 | 23.6 | 182 | 4064 | 22.3 | 203 | 4692 | 23.1 |
| Peru | 177 | 4429 | 25.0 | | | | | | |
| Poland | 127 | 3654 | 28.8 | 166 | 4383 | 26.4 | 221 | 5547 | 25.1 |
| Portugal | 149 | 4585 | 30.8 | 153 | 4608 | 30.1 | 173 | 5109 | 29.5 |
| Qatar | | | | | | | 131 | 6265 | 47.8 |
| Romania | | | | | | | 174 | 5118 | 29.4 |
| Russian Federation | 246 | 6701 | 27.2 | 212 | 5974 | 28.2 | 209 | 5799 | 27.7 |
| Serbia | | | | 149 | 4405 | 29.6 | 162 | 4798 | 29.6 |
| Slovak Republic | | | | 281 | 7346 | 26.1 | 189 | 4731 | 25.0 |
| Slovenia | | | | | | | 361 | 6595 | 18.3 |
| Spain | 185 | 6214 | 33.6 | 383 | 10791 | 28.2 | 686 | 19604 | 28.6 |
| Sweden | 154 | 4416 | 28.7 | 185 | 4624 | 25.0 | 197 | 4443 | 22.6 |
| Switzerland | 282 | 6100 | 21.6 | 445 | 8420 | 18.9 | 510 | 12192 | 23.9 |
| Chinese Taipei | | | | | | | 236 | 8815 | 37.4 |
| Thailand | 179 | 5340 | 29.8 | 179 | 5236 | 29.3 | 212 | 6192 | 29.2 |
| Tunisia | | | | 149 | 4721 | 31.7 | 152 | 4640 | 30.5 |
| Turkey | | | | 159 | 4855 | 30.5 | 160 | 4942 | 30.9 |
| United Kingdom | 362 | 9340 | 25.8 | 339 | 9535 | 28.1 | 502 | 13152 | 26.2 |
| United States | 153 | 3846 | 25.1 | 274 | 5456 | 19.9 | 166 | 5611 | 33.8 |
| Uruguay | | | | 243 | 5835 | 24.0 | 278 | 4839 | 17.4 |
| <i>Central tendency indices on the 35 countries that participated in the three surveys</i> | | | | | | | | | |
| Median | | | 26.4 | | | 26.8 | | | |
| Mean | | | 30.2 | | | 29.9 | | | |



[Part 1/1]

Table A3.3 School variance estimate by country, by domain and cycle

| | PISA 2000 | | | PISA 2003 | | | PISA 2006 | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Reading | Mathematics | Science | Reading | Mathematics | Science | Reading | Mathematics | Science |
| Albania | 4046 | 3355 | 2521 | | | | | | |
| Argentina | 5920 | 6282 | 4897 | | | | 6881 | 5072 | 4794 |
| Australia | 1888 | 1405 | 1500 | 2009 | 1927 | 2079 | 1878 | 1694 | 1839 |
| Austria | 6417 | 5173 | 5241 | 7566 | 5250 | 5823 | 6861 | 5785 | 5464 |
| Azerbaijan | | | | | | | 2359 | 1655 | 1612 |
| Belgium | 7025 | 6291 | 6939 | 7186 | 7240 | 5983 | 6593 | 5814 | 5182 |
| Brazil | 3379 | 3548 | 2453 | 3416 | 4159 | 3182 | 4555 | 4342 | 3711 |
| Bulgaria | 6162 | 5764 | 3776 | | | | 7870 | 5199 | 6226 |
| Canada | 1588 | 1255 | 1279 | 1199 | 1270 | 1492 | 2163 | 1547 | 1668 |
| Chile | 4968 | 4268 | 3813 | | | | 6011 | 4800 | 4740 |
| Colombia | | | | | | | 3466 | 2973 | 2244 |
| Croatia | | | | | | | 3794 | 2721 | 3036 |
| Czech Republic | 4814 | 4055 | 3612 | 4507 | 4942 | 4388 | 7325 | 6451 | 5617 |
| Denmark | 1876 | 1363 | 1760 | 1437 | 1147 | 1308 | 1593 | 1281 | 1393 |
| Estonia | | | | | | | 2217 | 1594 | 1437 |
| Finland | 1009 | 410 | 448 | 257 | 343 | 361 | 643 | 489 | 433 |
| France | 4243 | 3704 | 5006 | 4245 | 3830 | 5803 | 6090 | 5049 | 5488 |
| Germany | 6903 | 5653 | 5191 | 7001 | 6101 | 7036 | 9733 | 6183 | 5944 |
| Greece | 5060 | 5576 | 3786 | 3976 | 3357 | 2723 | 5493 | 3877 | 4369 |
| Hong Kong-China | 3318 | 3955 | 3198 | 2949 | 4573 | 3915 | 2605 | 3420 | 3072 |
| Hungary | 6408 | 5236 | 5731 | 4919 | 5710 | 5424 | 7164 | 6181 | 5453 |
| Iceland | 696 | 430 | 572 | 382 | 319 | 365 | 1220 | 725 | 898 |
| Indonesia | 2019 | 2253 | 1704 | 1991 | 2720 | 1605 | 2422 | 2746 | 1745 |
| Ireland | 1566 | 816 | 1242 | 1712 | 1218 | 1408 | 2010 | 1310 | 1539 |
| Israel | 5109 | 5673 | 4953 | | | | 5641 | 4668 | 3926 |
| Italy | 4844 | 3578 | 4188 | 5009 | 4915 | 5701 | 6210 | 4951 | 4758 |
| Japan | 3377 | 3727 | 3646 | 4998 | 5400 | 5543 | 5459 | 4474 | 4867 |
| Jordan | | | | | | | 2629 | 1660 | 1792 |
| Korea | 1840 | 2889 | 2574 | 2475 | 3607 | 3870 | 3205 | 3494 | 2869 |
| Kyrgyzstan | | | | | | | 4334 | 3159 | 2763 |
| Latvia | 3305 | 2836 | 2775 | 1666 | 1761 | 1778 | 2183 | 1537 | 1316 |
| Liechtenstein | 3456 | 3395 | 3171 | 2998 | 3461 | 3510 | 3452 | 2921 | 3176 |
| Lithuania | | | | | | | 2671 | 2687 | 2308 |
| Luxembourg | 3069 | 2056 | 2474 | 2656 | 2673 | 3018 | 2817 | 2777 | 2738 |
| Macao-China | | | | 1105 | 1455 | 1356 | 1708 | 1733 | 1739 |
| Macedonia | 3994 | 3025 | 2350 | | | | | | |
| Mexico | 3969 | 3467 | 2429 | 2818 | 2496 | 1934 | 3296 | 2580 | 2293 |
| Montenegro | | | | | | | 2715 | 1752 | 1812 |
| Netherlands | 3984 | 3873 | 4262 | 4316 | 5508 | 5743 | 5567 | 4880 | 5359 |
| New Zealand | 1892 | 1702 | 1732 | 1916 | 1781 | 1922 | 2108 | 1406 | 1930 |
| Norway | 1111 | 726 | 845 | 819 | 578 | 846 | 1385 | 942 | 964 |
| Peru | 5992 | 4786 | 3179 | | | | | | |
| Poland | 6127 | 5483 | 4684 | 1351 | 1035 | 1489 | 1580 | 1121 | 1108 |
| Portugal | 3457 | 2492 | 2427 | 3315 | 2620 | 2733 | 3449 | 2746 | 2502 |
| Qatar | | | | | | | 7141 | 5015 | 4240 |
| Romania | | | | | | | 4658 | 3614 | 3182 |
| Russian Federation | 3079 | 3896 | 3034 | 2034 | 2558 | 2086 | 3121 | 2325 | 2166 |
| Serbia | | | | 2305 | 2566 | 1978 | 3941 | 3723 | 3086 |
| Slovak Republic | | | | 3538 | 3794 | 4560 | 5567 | 4541 | 3690 |
| Slovenia | | | | | | | 6634 | 4674 | 5811 |
| Spain | 1473 | 1445 | 1595 | 1700 | 1489 | 1677 | 1271 | 1240 | 1151 |
| Sweden | 793 | 691 | 679 | 873 | 970 | 1046 | 1694 | 1215 | 1091 |
| Switzerland | 4421 | 3970 | 4024 | 2608 | 3165 | 3314 | 3101 | 3283 | 3375 |
| Chinese Taipei | | | | | | | 3194 | 5020 | 4120 |
| Thailand | 1848 | 2324 | 1789 | 2120 | 2602 | 2176 | 2863 | 2480 | 2294 |
| Tunisia | | | | 3024 | 2807 | 2549 | 4636 | 4003 | 2904 |
| Turkey | | | | 4772 | 5915 | 4732 | 4047 | 4557 | 3653 |
| United Kingdom | 2114 | 1865 | 2195 | 1815 | 1829 | 2048 | 2234 | 1726 | 2200 |
| United States | 3236 | 3127 | 3637 | 2481 | 2345 | 2270 | | 2201 | 2626 |
| Uruguay | | | | 5553 | 4618 | 4108 | 6018 | 3926 | 3525 |
| <i>Central tendency indices on the 35 countries that participated in the three surveys</i> | | | | | | | | | |
| Median | 3305 | 3127 | 2574 | 2481 | 2620 | 2270 | 2982 | 2746 | 2502 |
| Mean | 3303 | 2990 | 2909 | 2935 | 2997 | 3017 | 3628 | 3006 | 2931 |

[Part 1/1]

Table A3.4 Intraclass correlation by country, by domain and cycle

| | PISA 2000 | | | PISA 2003 | | | PISA 2006 | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Reading | Mathematics | Science | Reading | Mathematics | Science | Reading | Mathematics | Science |
| Albania | 0.41 | 0.29 | 0.28 | | | | | | |
| Argentina | 0.51 | 0.43 | 0.41 | | | | 0.45 | 0.51 | 0.48 |
| Australia | 0.18 | 0.17 | 0.17 | 0.21 | 0.21 | 0.20 | 0.21 | 0.22 | 0.18 |
| Austria | 0.60 | 0.53 | 0.55 | 0.62 | 0.55 | 0.57 | 0.56 | 0.56 | 0.55 |
| Azerbaijan | | | | | | | 0.46 | 0.57 | 0.50 |
| Belgium | 0.60 | 0.55 | 0.55 | 0.56 | 0.56 | 0.50 | 0.54 | 0.53 | 0.52 |
| Brazil | 0.44 | 0.36 | 0.30 | 0.28 | 0.45 | 0.34 | 0.46 | 0.53 | 0.47 |
| Bulgaria | 0.56 | 0.47 | 0.40 | | | | 0.56 | 0.51 | 0.54 |
| Canada | 0.18 | 0.18 | 0.16 | 0.15 | 0.17 | 0.15 | 0.23 | 0.21 | 0.19 |
| Chile | 0.56 | 0.45 | 0.40 | | | | 0.49 | 0.56 | 0.50 |
| Colombia | | | | | | | 0.30 | 0.37 | 0.30 |
| Croatia | | | | | | | 0.47 | 0.38 | 0.40 |
| Czech Republic | 0.53 | 0.44 | 0.41 | 0.49 | 0.51 | 0.42 | 0.56 | 0.55 | 0.53 |
| Denmark | 0.19 | 0.18 | 0.16 | 0.18 | 0.14 | 0.13 | 0.20 | 0.17 | 0.16 |
| Estonia | | | | | | | 0.31 | 0.25 | 0.21 |
| Finland | 0.12 | 0.06 | 0.06 | 0.04 | 0.05 | 0.04 | 0.10 | 0.07 | 0.06 |
| France | 0.50 | 0.46 | 0.48 | 0.45 | 0.46 | 0.47 | 0.57 | 0.56 | 0.54 |
| Germany | 0.59 | 0.55 | 0.50 | 0.58 | 0.58 | 0.56 | 0.67 | 0.61 | 0.57 |
| Greece | 0.51 | 0.46 | 0.40 | 0.35 | 0.36 | 0.27 | 0.49 | 0.42 | 0.47 |
| Hong Kong-China | 0.47 | 0.45 | 0.45 | 0.42 | 0.47 | 0.45 | 0.39 | 0.40 | 0.37 |
| Hungary | 0.67 | 0.53 | 0.53 | 0.53 | 0.58 | 0.51 | 0.68 | 0.65 | 0.61 |
| Iceland | 0.08 | 0.06 | 0.07 | 0.04 | 0.04 | 0.04 | 0.13 | 0.09 | 0.09 |
| Indonesia | 0.43 | 0.34 | 0.33 | 0.36 | 0.44 | 0.37 | 0.50 | 0.50 | 0.43 |
| Ireland | 0.18 | 0.12 | 0.15 | 0.22 | 0.17 | 0.16 | 0.23 | 0.19 | 0.17 |
| Israel | 0.43 | 0.34 | 0.32 | | | | 0.38 | 0.40 | 0.31 |
| Italy | 0.55 | 0.42 | 0.42 | 0.49 | 0.52 | 0.48 | 0.52 | 0.52 | 0.50 |
| Japan | 0.46 | 0.49 | 0.44 | 0.44 | 0.53 | 0.46 | 0.50 | 0.53 | 0.47 |
| Jordan | | | | | | | 0.31 | 0.25 | 0.23 |
| Korea | 0.37 | 0.40 | 0.39 | 0.36 | 0.42 | 0.38 | 0.40 | 0.40 | 0.35 |
| Kyrgyzstan | | | | | | | 0.41 | 0.42 | 0.39 |
| Latvia | 0.31 | 0.26 | 0.29 | 0.20 | 0.23 | 0.20 | 0.26 | 0.22 | 0.19 |
| Liechtenstein | 0.45 | 0.43 | 0.41 | 0.43 | 0.43 | 0.40 | 0.46 | 0.41 | 0.43 |
| Lithuania | | | | | | | 0.29 | 0.32 | 0.28 |
| Luxembourg | 0.31 | 0.24 | 0.27 | 0.27 | 0.31 | 0.28 | 0.29 | 0.32 | 0.30 |
| Macao-China | | | | 0.23 | 0.19 | 0.17 | 0.27 | 0.23 | 0.26 |
| Macedonia | 0.45 | 0.31 | 0.34 | | | | | | |
| Mexico | 0.53 | 0.50 | 0.41 | 0.36 | 0.39 | 0.28 | 0.41 | 0.42 | 0.40 |
| Montenegro | | | | | | | 0.33 | 0.25 | 0.28 |
| Netherlands | 0.50 | 0.51 | 0.46 | 0.58 | 0.62 | 0.57 | 0.62 | 0.63 | 0.60 |
| New Zealand | 0.16 | 0.17 | 0.17 | 0.17 | 0.18 | 0.18 | 0.19 | 0.16 | 0.17 |
| Norway | 0.10 | 0.09 | 0.09 | 0.08 | 0.07 | 0.08 | 0.13 | 0.11 | 0.11 |
| Peru | 0.58 | 0.39 | 0.36 | | | | | | |
| Poland | 0.62 | 0.55 | 0.50 | 0.15 | 0.13 | 0.14 | 0.16 | 0.15 | 0.14 |
| Portugal | 0.37 | 0.30 | 0.31 | 0.38 | 0.34 | 0.31 | 0.36 | 0.33 | 0.32 |
| Qatar | | | | | | | 0.54 | 0.53 | 0.53 |
| Romania | | | | | | | 0.54 | 0.52 | 0.49 |
| Russian Federation | 0.37 | 0.36 | 0.31 | 0.23 | 0.30 | 0.21 | 0.35 | 0.28 | 0.27 |
| Serbia | | | | 0.34 | 0.35 | 0.29 | 0.45 | 0.42 | 0.41 |
| Slovak Republic | | | | 0.41 | 0.43 | 0.43 | 0.50 | 0.49 | 0.42 |
| Slovenia | | | | | | | 0.73 | 0.60 | 0.60 |
| Spain | 0.20 | 0.18 | 0.17 | 0.19 | 0.20 | 0.17 | 0.17 | 0.16 | 0.15 |
| Sweden | 0.09 | 0.08 | 0.08 | 0.10 | 0.11 | 0.09 | 0.17 | 0.15 | 0.12 |
| Switzerland | 0.43 | 0.40 | 0.42 | 0.30 | 0.34 | 0.30 | 0.37 | 0.36 | 0.36 |
| Chinese Taipei | | | | | | | 0.46 | 0.49 | 0.47 |
| Thailand | 0.31 | 0.33 | 0.30 | 0.34 | 0.37 | 0.32 | 0.42 | 0.36 | 0.37 |
| Tunisia | | | | 0.33 | 0.42 | 0.33 | 0.47 | 0.48 | 0.42 |
| Turkey | | | | 0.53 | 0.55 | 0.53 | 0.48 | 0.53 | 0.53 |
| United Kingdom | 0.22 | 0.23 | 0.24 | 0.21 | 0.22 | 0.20 | 0.22 | 0.23 | 0.20 |
| United States | 0.29 | 0.33 | 0.35 | 0.24 | 0.26 | 0.22 | | 0.28 | 0.24 |
| Uruguay | | | | 0.36 | 0.44 | 0.33 | 0.41 | 0.40 | 0.40 |
| <i>Central tendency indices on the 35 countries that participated in the three surveys</i> | | | | | | | | | |
| Median | 0.37 | 0.36 | 0.33 | 0.30 | 0.34 | 0.28 | 0.38 | 0.36 | 0.35 |
| Mean | 0.37 | 0.34 | 0.32 | 0.31 | 0.33 | 0.30 | 0.37 | 0.35 | 0.33 |



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Table A3.5 Within explicit strata intraclass correlation by country, by domain and cycle

| | PISA 2000 | | | PISA 2003 | | | PISA 2006 | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Reading | Mathematics | Science | Reading | Mathematics | Science | Reading | Mathematics | Science |
| Albania | 0.26 | 0.19 | 0.19 | | | | | | |
| Argentina | 0.40 | 0.33 | 0.31 | | | | 0.37 | 0.43 | 0.40 |
| Australia | 0.13 | 0.12 | 0.12 | 0.15 | 0.15 | 0.14 | 0.13 | 0.15 | 0.11 |
| Austria | 0.12 | 0.15 | 0.15 | 0.42 | 0.33 | 0.34 | 0.31 | 0.29 | 0.31 |
| Azerbaijan | | | | | | | 0.37 | 0.53 | 0.42 |
| Belgium | 0.42 | 0.39 | 0.38 | 0.31 | 0.29 | 0.26 | 0.33 | 0.32 | 0.32 |
| Brazil | 0.43 | 0.36 | 0.29 | 0.17 | 0.29 | 0.20 | 0.41 | 0.47 | 0.42 |
| Bulgaria | 0.47 | 0.37 | 0.30 | | | | 0.48 | 0.43 | 0.44 |
| Canada | 0.13 | 0.14 | 0.13 | 0.12 | 0.13 | 0.12 | 0.20 | 0.18 | 0.16 |
| Chile | 0.33 | 0.26 | 0.22 | | | | 0.33 | 0.38 | 0.32 |
| Colombia | | | | | | | 0.29 | 0.36 | 0.30 |
| Croatia | | | | | | | 0.22 | 0.17 | 0.17 |
| Czech Republic | 0.12 | 0.15 | 0.10 | 0.32 | 0.33 | 0.25 | 0.29 | 0.25 | 0.24 |
| Denmark | 0.18 | 0.16 | 0.16 | 0.17 | 0.13 | 0.12 | 0.19 | 0.17 | 0.16 |
| Estonia | | | | | | | 0.21 | 0.18 | 0.14 |
| Finland | 0.11 | 0.06 | 0.04 | 0.03 | 0.04 | 0.04 | 0.08 | 0.07 | 0.05 |
| France | 0.19 | 0.17 | 0.16 | 0.17 | 0.16 | 0.17 | 0.31 | 0.26 | 0.25 |
| Germany | | | | 0.50 | 0.50 | 0.48 | 0.55 | 0.54 | 0.49 |
| Greece | 0.43 | 0.35 | 0.33 | 0.33 | 0.35 | 0.25 | 0.39 | 0.29 | 0.33 |
| Hong Kong-China | 0.47 | 0.44 | 0.44 | 0.42 | 0.46 | 0.45 | 0.38 | 0.39 | 0.36 |
| Hungary | 0.59 | 0.49 | 0.46 | 0.20 | 0.26 | 0.17 | 0.43 | 0.40 | 0.33 |
| Iceland | 0.07 | 0.05 | 0.07 | 0.03 | 0.03 | 0.03 | 0.11 | 0.08 | 0.08 |
| Indonesia | 0.38 | 0.28 | 0.29 | 0.33 | 0.40 | 0.33 | 0.46 | 0.44 | 0.38 |
| Ireland | 0.17 | 0.11 | 0.14 | 0.20 | 0.15 | 0.14 | 0.21 | 0.17 | 0.15 |
| Israel | 0.37 | 0.28 | 0.28 | | | | 0.31 | 0.30 | 0.25 |
| Italy | 0.34 | 0.26 | 0.27 | 0.19 | 0.22 | 0.18 | 0.20 | 0.21 | 0.17 |
| Japan | 0.44 | 0.47 | 0.42 | 0.43 | 0.51 | 0.44 | 0.46 | 0.50 | 0.44 |
| Jordan | | | | | | | 0.26 | 0.21 | 0.19 |
| Korea | 0.17 | 0.13 | 0.13 | 0.18 | 0.21 | 0.20 | 0.27 | 0.25 | 0.20 |
| Kyrgyzstan | | | | | | | 0.23 | 0.25 | 0.22 |
| Latvia | 0.26 | 0.23 | 0.26 | 0.18 | 0.20 | 0.19 | 0.24 | 0.19 | 0.16 |
| Liechtenstein | 0.45 | 0.43 | 0.40 | | | | | | |
| Lithuania | | | | | | | 0.17 | 0.19 | 0.16 |
| Luxembourg | 0.31 | 0.22 | 0.27 | 0.25 | 0.28 | 0.25 | 0.13 | 0.15 | 0.14 |
| Macao-China | | | | 0.22 | 0.16 | 0.16 | 0.19 | 0.17 | 0.19 |
| Macedonia | 0.31 | 0.19 | 0.19 | | | | | | |
| Mexico | 0.48 | 0.44 | 0.36 | 0.30 | 0.33 | 0.23 | 0.29 | 0.31 | 0.29 |
| Montenegro | | | | | | | 0.27 | 0.23 | 0.24 |
| Netherlands | 0.18 | 0.18 | 0.15 | 0.28 | 0.30 | 0.22 | 0.37 | 0.30 | 0.26 |
| New Zealand | 0.15 | 0.16 | 0.16 | 0.17 | 0.17 | 0.17 | 0.19 | 0.16 | 0.16 |
| Norway | 0.09 | 0.08 | 0.09 | 0.08 | 0.07 | 0.08 | 0.12 | 0.10 | 0.10 |
| Peru | 0.49 | 0.30 | 0.28 | | | | | | |
| Poland | 0.25 | 0.23 | 0.20 | 0.14 | 0.12 | 0.13 | 0.14 | 0.13 | 0.12 |
| Portugal | 0.35 | 0.29 | 0.29 | 0.34 | 0.30 | 0.27 | 0.19 | 0.16 | 0.14 |
| Qatar | | | | | | | 0.20 | 0.20 | 0.20 |
| Romania | | | | | | | 0.35 | 0.35 | 0.31 |
| Russian Federation | 0.31 | 0.29 | 0.25 | 0.15 | 0.20 | 0.12 | 0.26 | 0.20 | 0.19 |
| Serbia | | | | 0.33 | 0.34 | 0.27 | 0.40 | 0.36 | 0.36 |
| Slovak Republic | | | | 0.36 | 0.38 | 0.38 | 0.37 | 0.36 | 0.27 |
| Slovenia | | | | | | | 0.36 | 0.26 | 0.23 |
| Spain | 0.13 | 0.11 | 0.10 | 0.12 | 0.12 | 0.11 | 0.11 | 0.09 | 0.09 |
| Sweden | 0.07 | 0.06 | 0.06 | 0.08 | 0.09 | 0.08 | 0.14 | 0.12 | 0.10 |
| Switzerland | 0.35 | 0.32 | 0.34 | 0.25 | 0.29 | 0.25 | 0.28 | 0.27 | 0.27 |
| Chinese Taipei | | | | | | | 0.37 | 0.40 | 0.38 |
| Thailand | 0.26 | 0.29 | 0.24 | 0.28 | 0.32 | 0.26 | 0.31 | 0.29 | 0.27 |
| Tunisia | | | | 0.33 | 0.42 | 0.33 | 0.18 | 0.19 | 0.13 |
| Turkey | | | | 0.36 | 0.40 | 0.39 | 0.41 | 0.49 | 0.49 |
| United Kingdom | 0.21 | 0.22 | 0.23 | 0.21 | 0.21 | 0.19 | 0.21 | 0.21 | 0.19 |
| United States | | | | 0.22 | 0.24 | 0.20 | | 0.28 | 0.24 |
| Uruguay | | | | 0.22 | 0.31 | 0.22 | 0.25 | 0.22 | 0.21 |
| <i>Central tendency indices on the 35 countries that participated in the three surveys</i> | | | | | | | | | |
| Median | 0.21 | 0.19 | 0.18 | 0.18 | 0.20 | 0.14 | 0.27 | 0.22 | 0.20 |
| Mean | 0.23 | 0.20 | 0.19 | 0.18 | 0.19 | 0.16 | 0.26 | 0.25 | 0.22 |

[Part 1/1]

Table A3.6 Percentages of school variance explained by explicit stratification variables, by domain and cycle

| | PISA 2000 | | | PISA 2003 | | | PISA 2006 | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Reading | Mathematics | Science | Reading | Mathematics | Science | Reading | Mathematics | Science |
| Albania | 0.48 | 0.43 | 0.41 | | | | | | |
| Argentina | 0.34 | 0.36 | 0.35 | | | | 0.29 | 0.26 | 0.27 |
| Australia | 0.33 | 0.35 | 0.35 | 0.36 | 0.35 | 0.37 | 0.43 | 0.38 | 0.43 |
| Austria | 0.90 | 0.84 | 0.86 | 0.55 | 0.60 | 0.60 | 0.65 | 0.69 | 0.62 |
| Azerbaijan | | | | | | | 0.30 | 0.16 | 0.27 |
| Belgium | 0.51 | 0.48 | 0.50 | 0.65 | 0.68 | 0.64 | 0.58 | 0.57 | 0.56 |
| Brazil | 0.04 | 0.03 | 0.03 | 0.48 | 0.48 | 0.51 | 0.16 | 0.21 | 0.19 |
| Bulgaria | 0.32 | 0.32 | 0.33 | | | | 0.27 | 0.26 | 0.31 |
| Canada | 0.28 | 0.25 | 0.24 | 0.26 | 0.24 | 0.23 | 0.18 | 0.18 | 0.20 |
| Chile | 0.60 | 0.58 | 0.59 | | | | 0.50 | 0.52 | 0.54 |
| Colombia | | | | | | | 0.04 | 0.04 | 0.03 |
| Croatia | | | | | | | 0.69 | 0.67 | 0.70 |
| Czech Republic | 0.88 | 0.78 | 0.85 | 0.50 | 0.53 | 0.55 | 0.68 | 0.72 | 0.71 |
| Denmark | 0.07 | 0.12 | 0.03 | 0.07 | 0.07 | 0.05 | 0.02 | 0.01 | 0.02 |
| Estonia | | | | | | | 0.39 | 0.32 | 0.39 |
| Finland | 0.11 | 0.12 | 0.29 | 0.18 | 0.11 | 0.19 | 0.15 | 0.11 | 0.11 |
| France | 0.77 | 0.76 | 0.79 | 0.76 | 0.77 | 0.77 | 0.67 | 0.73 | 0.71 |
| Germany | | | | 0.29 | 0.26 | 0.28 | 0.41 | 0.24 | 0.27 |
| Greece | 0.28 | 0.36 | 0.27 | 0.07 | 0.08 | 0.09 | 0.33 | 0.42 | 0.43 |
| Hong Kong-China | 0.03 | 0.03 | 0.03 | 0.01 | 0.01 | 0.01 | 0.04 | 0.04 | 0.04 |
| Hungary | 0.29 | 0.18 | 0.24 | 0.78 | 0.75 | 0.80 | 0.65 | 0.65 | 0.68 |
| Iceland | 0.14 | 0.13 | 0.11 | 0.23 | 0.28 | 0.20 | 0.11 | 0.13 | 0.17 |
| Indonesia | 0.19 | 0.24 | 0.19 | 0.15 | 0.18 | 0.16 | 0.17 | 0.21 | 0.19 |
| Ireland | 0.06 | 0.05 | 0.04 | 0.13 | 0.11 | 0.12 | 0.12 | 0.14 | 0.18 |
| Israel | 0.24 | 0.24 | 0.18 | | | | 0.28 | 0.35 | 0.26 |
| Italy | 0.58 | 0.52 | 0.50 | 0.75 | 0.74 | 0.76 | 0.77 | 0.76 | 0.80 |
| Japan | 0.10 | 0.09 | 0.11 | 0.07 | 0.08 | 0.08 | 0.16 | 0.13 | 0.14 |
| Jordan | | | | | | | 0.18 | 0.19 | 0.21 |
| Korea | 0.66 | 0.77 | 0.76 | 0.59 | 0.62 | 0.60 | 0.44 | 0.51 | 0.52 |
| Kyrgyzstan | | | | | | | 0.58 | 0.55 | 0.56 |
| Latvia | 0.23 | 0.19 | 0.16 | 0.13 | 0.14 | 0.11 | 0.13 | 0.20 | 0.17 |
| Liechtenstein | | | | | | | | | |
| Lithuania | | | | | | | 0.51 | 0.52 | 0.52 |
| Luxembourg | 0.01 | 0.10 | 0.02 | 0.08 | 0.17 | 0.15 | 0.62 | 0.62 | 0.61 |
| Macao-China | | | | 0.08 | 0.14 | 0.10 | 0.36 | 0.29 | 0.35 |
| Macedonia | 0.45 | 0.48 | 0.54 | | | | | | |
| Mexico | 0.20 | 0.20 | 0.18 | 0.24 | 0.23 | 0.24 | 0.41 | 0.39 | 0.39 |
| Montenegro | | | | | | | 0.24 | 0.10 | 0.22 |
| Netherlands | 0.79 | 0.78 | 0.79 | 0.72 | 0.74 | 0.79 | 0.65 | 0.75 | 0.77 |
| New Zealand | 0.06 | 0.07 | 0.06 | 0.03 | 0.07 | 0.05 | 0.01 | 0.03 | 0.02 |
| Norway | 0.09 | 0.09 | 0.07 | 0.03 | 0.03 | 0.01 | 0.06 | 0.08 | 0.07 |
| Peru | 0.30 | 0.34 | 0.31 | | | | | | |
| Poland | 0.80 | 0.75 | 0.75 | 0.06 | 0.06 | 0.07 | 0.13 | 0.18 | 0.17 |
| Portugal | 0.08 | 0.08 | 0.08 | 0.16 | 0.17 | 0.16 | 0.57 | 0.62 | 0.64 |
| Qatar | | | | | | | 0.79 | 0.77 | 0.77 |
| Romania | | | | | | | 0.53 | 0.49 | 0.53 |
| Russian Federation | 0.23 | 0.26 | 0.25 | 0.42 | 0.44 | 0.46 | 0.34 | 0.35 | 0.36 |
| Serbia | | | | 0.08 | 0.07 | 0.08 | 0.19 | 0.22 | 0.22 |
| Slovak Republic | | | | 0.19 | 0.21 | 0.20 | 0.41 | 0.40 | 0.49 |
| Slovenia | | | | | | | 0.79 | 0.77 | 0.80 |
| Spain | 0.44 | 0.44 | 0.47 | 0.45 | 0.43 | 0.41 | 0.42 | 0.48 | 0.44 |
| Sweden | 0.27 | 0.24 | 0.31 | 0.19 | 0.18 | 0.17 | 0.24 | 0.19 | 0.17 |
| Switzerland | 0.30 | 0.30 | 0.28 | 0.22 | 0.23 | 0.21 | 0.34 | 0.35 | 0.33 |
| Chinese Taipei | | | | | | | 0.31 | 0.32 | 0.30 |
| Thailand | 0.22 | 0.18 | 0.25 | 0.25 | 0.20 | 0.27 | 0.37 | 0.28 | 0.36 |
| Tunisia | | | | 0.02 | 0.02 | 0.01 | 0.75 | 0.74 | 0.80 |
| Turkey | | | | 0.50 | 0.44 | 0.43 | 0.24 | 0.17 | 0.17 |
| United Kingdom | 0.04 | 0.04 | 0.04 | 0.05 | 0.06 | 0.04 | 0.07 | 0.08 | 0.08 |
| United States | | | | 0.11 | 0.10 | 0.12 | | | |
| Uruguay | | | | 0.48 | 0.43 | 0.44 | 0.53 | 0.58 | 0.60 |
| <i>Central tendency indices on the 35 countries that participated in the three surveys</i> | | | | | | | | | |
| Median | 0.23 | 0.22 | 0.24 | 0.23 | 0.22 | 0.21 | 0.34 | 0.28 | 0.34 |
| Mean | 0.31 | 0.31 | 0.31 | 0.29 | 0.30 | 0.30 | 0.34 | 0.34 | 0.34 |



APPENDIX 4 Changes to core questionnaire items from 2003 to 2006

[Part 1/2]

Table A4.1 Student questionnaire

| PISA 2006 Question number | PISA 2006 Variable name | PISA 2003 Question number | PISA 2003 Variable name | PISA 2006 English version | Summary of changes from PISA 2003 | |
|---------------------------|-------------------------|---------------------------|-------------------------|---|--|---|
| Q1 | ST01Q01 | Q1a | ST01Q01 | What <grade> are you in? | Unchanged | |
| Q2 | ST02Q01 | Q1b | ST01Q02 | Which one of the following <programmes> are you in? | Unchanged | |
| Q3 | ST03Q02 ST03Q03 | Q2 | b | ST02Q02 | Month | Unchanged |
| | | c | ST02Q03 | Year | Unchanged | |
| Q4 | ST04Q01 | Q3 | ST03Q01 | Are you female or male? Female Male | Unchanged | |
| Q5a | ST05Q01 | Q7 | ST07Q01 | What is your mother's main job? (e.g. school teacher, kitchen-hand, sales manager) | Identical except for the example jobs: "(e.g. <school teacher, nurse, sales manager>)" | |
| Q5b | | | | Q8 | | ST08Q01 |
| Q6 | ST06Q01 | Q11 | a b c d e | ST11Q01 | <ISCED level 3A> | In PISA 2003: "Which of the following did your mother complete at <school>?" (Please <tick> as many boxes as apply.) |
| Q7 | a b c | | | ST11Q02 | <ISCED level 3B, 3C> | |
| | | | | ST11Q03 | <ISCED level 2> | |
| | | | | ST11Q04 | <ISCED level 1> | |
| | | | | ST11Q05 | She did not complete <ISCED level 1> | |
| Q7 | | Q12 | | Does your mother have any of the following qualifications? | Wording is identical but response format changed. In PISA 2006 there were two boxes: "Yes" or "No". In PISA 2003 there was only one box for each item. | |
| a | ST07Q01 | a | ST12Q01 | <ISCED level 5A, 6> | | |
| b | ST07Q02 | b | ST12Q02 | <ISCED level 5B> | | |
| c | ST07Q03 | c | ST12Q03 | <ISCED level 4> | | |
| Q8a | ST08Q01 | Q9 | ST09Q01 | What is your father's main job? (e.g. school teacher, kitchen-hand, sales manager) | Identical except for the example jobs: "(e.g. <school teacher, carpenter, sales manager>)" | |
| Q8b | | | | Q10 | | ST10Q01 |
| Q9 | ST09Q01 | Q13 | a b c d e | ST13Q01 | <ISCED level 3A> | In PISA 2003: "Which of the following did your father complete at <school>?" (Please <tick> as many boxes as apply.) |
| Q10 | a b c | | | ST13Q02 | <ISCED level 3B, 3C> | |
| | | | | ST13Q03 | <ISCED level 2> | |
| | | | | ST13Q04 | <ISCED level 1> | |
| | | | | ST13Q05 | He did not complete <ISCED level 1> | |
| Q10 | | Q14 | | Does your father have any of the following qualifications? | Wording is identical but response format changed. In PISA 2006 there were two boxes: "Yes" or "No". In PISA 2003 there was only one box for each item. | |
| a | ST10Q01 | a | ST14Q01 | <ISCED 5A, 6> | | |
| b | ST10Q02 | b | ST14Q02 | <ISCED 5B> | | |
| c | ST10Q03 | c | ST14Q03 | <ISCED 4> | | |

[Part 2/2]

Table A4.1 Student questionnaire

| PISA 2006 Question number | PISA 2006 Variable name | PISA 2003 Question number | PISA 2003 Variable name | PISA 2006 English version | Summary of changes from PISA 2003 |
|---------------------------|-------------------------|---------------------------|-------------------------|---|---|
| Q11a | | Q15a | | In what country were you and your parents born? | |
| | ST11Q01 | a | ST15Q01 | You | <i>Unchanged</i> |
| | ST11Q02 | b | ST15Q02 | Mother | <i>Unchanged</i> |
| | ST11Q03 | c | ST15Q03 | Father | <i>Unchanged</i> |
| Q11b | ST11Q04 | Q15b | ST15Q04 | If you were NOT born in <country of test>, how old were you when you arrived in <country of test>? | <i>Unchanged</i> |
| Q12 | ST12Q01 | Q16 | ST16Q01 | What language do you speak at home most of the time? | <i>Unchanged</i> |
| Q13 | | Q17 | | Which of the following are in your home? | <i>Wording is identical but response format changed. In PISA 2006 there were two tick-boxes: "Yes" or "No". In PISA 2003 there was only one tick-box for each item.</i> |
| a | ST13Q01 | a | ST17Q01 | A desk to study at | |
| b | ST13Q02 | b | ST17Q02 | A room of your own | |
| c | ST13Q03 | c | ST17Q03 | A quiet place to study | |
| d | ST13Q04 | d | ST17Q04 | A computer you can use for school work | |
| e | ST13Q05 | e | ST17Q05 | Educational software | |
| f | ST13Q06 | f | ST17Q06 | A link to the Internet | |
| g | ST13Q07 | g | ST17Q07 | Your own calculator | |
| h | ST13Q08 | h | ST17Q08 | Classic literature (e.g. <Shakespeare>) | |
| i | ST13Q09 | i | ST17Q09 | Books of poetry | |
| j | ST13Q10 | j | ST17Q10 | Works of art (e.g. paintings) | |
| k | ST13Q11 | k | ST17Q11 | Books to help with your school work | |
| l | ST13Q12 | l | ST17Q12 | A dictionary | |
| m | ST13Q13 | m | ST17Q13 | A dishwasher | |
| Q15 | ST15Q01 | Q19 | ST19Q01 | How many books are there in your home? | <i>Unchanged</i> |
| | | | | 0-10 books | |
| | | | | 11-25 books | |
| | | | | 26-100 books | |
| | | | | 101-200 books | |
| | | | | 201-500 books | |
| | | | | More than 500 books | |
| Q30 | ST30Q01 | Q8 | EC08Q01 | What kind of job do you expect to have when you are about 30 years old? | <i>Unchanged</i> |
| | | | | Write the job title | |



[Part 1/1]

Table A4.2 ICT familiarity questionnaire

| PISA 2006 Question number | PISA 2006 Variable name | PISA 2003 Question number | PISA 2003 Variable name | PISA 2006 English version | Summary of changes from PISA 2003 |
|---------------------------|-------------------------|---------------------------|-------------------------|--|---|
| Q1 | IC01Q01 | Q2 | IC02Q01 | Have you ever used a computer? <i>If you answered Yes to the above question, please continue. If you answered No, please stop here.</i> | <i>Identical except in PISA 2003 it was not a filter question.</i> |
| Q2 | | Q3 | IC03Q01 | How long have you been using computers? Less than one year One year or more but less than three years Three years or more but less than five years Five years or more | How long have you been using computers? Less than one year One to three years Three to five years More than five years |
| Q3 | | Q4 | | How often do you use a computer at these places? | How often do you use a computer at these places? |
| a | IC03Q01 | a | IC04Q01 | At home | At home |
| b | IC03Q02 | b | IC04Q02 | At school | At school |
| c | IC03Q03 | c | IC04Q03 | At other places | At other places |
| | | | | Almost every day | Almost every day |
| | | | | Once or twice a week | A few times each week |
| | | | | A few times a month | Between once a week and once a month |
| | | | | Once a month or less | Less than once a month |
| | | | | Never | Never |
| Q4 | | Q5 | | How often do you use computers for the following reasons? | How often do you use: |
| a | IC04Q01 | a | IC05Q01 | Browse the Internet for information about people, things, or ideas | the Internet to look up information about people, things, or ideas? |
| b | IC04Q02 | b | IC05Q02 | Play games | games on a computer? |
| c | IC04Q03 | c | IC05Q03 | Write documents (e.g. with <Word® or WordPerfect®>) | Word processing (e.g. <Word® or WordPerfect®>)? |
| d | IC04Q04 | d | IC05Q04 | Use the Internet to collaborate with a group or team | the Internet to collaborate with a group or team? |
| e | IC04Q05 | e | IC05Q05 | Use spreadsheets (e.g. <Lotus 1 2 3® or Microsoft Excel®>) | spreadsheets (e.g. <Lotus 1 2 3® or Microsoft Excel®>)? |
| f | IC04Q06 | f | IC05Q06 | Download software from the Internet (including games) | the Internet to download software (including games)? |
| g | IC04Q07 | g | IC05Q07 | Drawing, painting or using graphics programmes | drawing, painting or graphics programmes on a computer? |
| h | IC04Q08 | h | IC05Q08 | Use educational software such as Mathematics programmes | educational software such as Mathematics programmes? |
| i | IC04Q09 | j | IC05Q10 | Download music from the Internet | the Internet to down-load music? |
| j | IC04Q10 | k | IC05Q11 | Writing computer programmes | the computer for programming? |
| k | IC04Q11 | l | IC05Q12 | For communication (e.g. E-mail or "chat rooms") | a computer for electronic communication (e.g. e-mail or "chat rooms")? |
| | | | | Almost every day | Almost every day |
| | | | | A few times each week | A few times each week |
| | | | | Between once a week and once a month | Between once a week and once a month |
| | | | | Less than once a month | Less than once a month |
| | | | | Never | Never |
| Q5 | | Q6 | | How well can you do each of these tasks on a computer? | <i>Unchanged</i> |
| b | IC05Q02 | b | IC06Q02 | Use software to find and get rid of computer viruses | <i>Unchanged</i> |
| f | IC05Q06 | k | IC06Q11 | Move files from one place to another on a computer | <i>Unchanged</i> |
| h | IC05Q08 | m | IC06Q13 | Download files or programmes from the Internet | <i>Unchanged</i> |
| i | IC05Q09 | n | IC06Q14 | Attach a file to an e-mail message | <i>Unchanged</i> |
| k | IC05Q11 | p | IC06Q16 | Use a spreadsheet to plot a graph | <i>Unchanged</i> |
| l | IC05Q12 | q | IC06Q17 | Create a presentation (e.g. using <Microsoft PowerPoint®>) | <i>Unchanged</i> |
| m | IC05Q13 | s | IC06Q19 | Download music from the Internet. | <i>Unchanged</i> |
| n | IC05Q14 | t | IC06Q20 | Create a multi-media presentation (with sound, pictures, video) | <i>Unchanged</i> |
| o | IC05Q15 | v | IC06Q22 | Write and send E-mails | <i>Unchanged</i> |
| p | IC05Q16 | w | IC06Q23 | Construct a web page | <i>Unchanged</i> |
| | | | | <i>I can do this very well by myself</i> | <i>Unchanged</i> |
| | | | | <i>I can do this with help from someone</i> | <i>Unchanged</i> |
| | | | | <i>I know what this means but I cannot do it</i> | <i>Unchanged</i> |
| | | | | <i>I don't know what this means</i> | <i>Unchanged</i> |

[Part 1/3]

Table A4.3 School questionnaire

| PISA 2006 Question number | PISA 2006 Variable name | PISA 2003 Question number | PISA 2003 Variable name | PISA 2006 English version | Summary of changes from PISA 2003 |
|---------------------------|-------------------------|---------------------------|-------------------------|--|---|
| Q1 | | Q2 | | As at <February 1, 2006>, what was the total school enrolment (number of students)? | Unchanged |
| a | SC01Q01 | a | SC02Q01 | Number of boys: | Unchanged |
| b | SC01Q02 | b | SC02Q02 | Number of girls: | Unchanged |
| Q2 | SC02Q01 | Q3 | SC03Q01 | Is your school a public or a private school? A public school A private school | Unchanged |
| Q3 | | Q4 | | About what percentage of your total funding for a typical school year comes from the following sources? | |
| a | SC03Q01 | a | SC04Q01 | Government (includes departments, local, regional, state and national) | Unchanged |
| b | SC03Q02 | b | SC04Q02 | Student fees or school charges paid by parents | Unchanged |
| c | SC03Q03 | c | SC04Q03 | Benefactors, donations, bequests, sponsorships, parent fund raising | Unchanged |
| d | SC03Q04 | d | SC04Q04 | Other | Unchanged |
| Q4 | | Q5 | | Do you have the following <grade levels> in your school? | |
| a | SC04Q01 | a | SC05Q01 | <Grade 1> | Unchanged |
| b | SC04Q02 | b | SC05Q02 | <Grade 2> | Unchanged |
| c | SC04Q03 | c | SC05Q03 | <Grade 3> | Unchanged |
| d | SC04Q04 | d | SC05Q04 | <Grade 4> | Unchanged |
| e | SC04Q05 | e | SC05Q05 | <Grade 5> | Unchanged |
| f | SC04Q06 | f | SC05Q06 | <Grade 6> | Unchanged |
| g | SC04Q07 | g | SC05Q07 | <Grade 7> | Unchanged |
| h | SC04Q08 | h | SC05Q08 | <Grade 8> | Unchanged |
| i | SC04Q09 | i | SC05Q09 | <Grade 9> | Unchanged |
| j | SC04Q10 | j | SC05Q10 | <Grade 10> | Unchanged |
| k | SC04Q11 | k | SC05Q11 | <Grade 11> | Unchanged |
| l | SC04Q12 | l | SC05Q12 | <Grade 12> | Unchanged |
| m | SC04Q13 | m | SC05Q13 | <Grade 13> | Unchanged |
| n | SC04Q14 | n | SC05Q14 | <Ungraded school> | Unchanged |
| Q5 | | Q6 | | About what percentage of students in your school repeated a <grade>, at these <ISCED levels>, last academic year? | Unchanged. However, in PISA 2003 there was a checkbox labeled "Not Applicable". In PISA 2006 the checkbox was labeled "<ISCED level> not available in this school". |
| a | SC05Q01 | a | SC06Q01 | The approximate percentage of students repeating a <grade> at <ISCED 2> in this school last year was: | |
| b | SC05Q02 | b | SC06Q02 | The approximate percentage of students repeating a <grade> at <ISCED 3> in this school last year was: | |
| Q7 | SC07Q01 | Q1 | SC01Q01 | Which of the following best describes the community in which your school is located? A village, hamlet or rural area (fewer than 3 000 people) A small town (3 000 to about 15 000 people) A town (15 000 to about 100 000 people) A city (100 000 to about 1 000 000 people) A large city (with over 1 000 000 people) | Unchanged |
| Q8 | | Q16 | | Some schools organise instruction differently for students with different abilities. What is your school's policy about this for students in <national modal grade for 15-year-olds>? | Schools sometimes organise instruction differently for students with different abilities and interests in Mathematics. Which of the following options describe what your school does for 15-year-old students in Mathematics classes? |
| b | SC08Q02 | c | SC16Q03 | Students are grouped by ability within their classes For all subjects For some subjects Not for any subjects | Students are grouped by ability within their Mathematics classes. For all classes For some classes Not for any classes |



[Part 2/3]

Table A4.3 School questionnaire

| PISA 2006 Question number | PISA 2006 Variable name | PISA 2003 Question number | PISA 2003 Variable name | PISA 2006 English version | Summary of changes from PISA 2003 |
|---------------------------|-------------------------|---------------------------|-------------------------|--|---|
| Q9 | | Q18 | | How many of the following are on the staff of your school? | <i>Unchanged</i> |
| a | SC09Q11 | a | SC18Q11 | Teachers in TOTAL | <i>Unchanged</i> |
| | SC09Q12 | | SC18Q21 | Full time Part time | |
| b | SC09Q21 | b | SC18Q12 | Teachers fully certified by <the appropriate authority> | <i>Unchanged</i> |
| | SC09Q22 | | SC18Q22 | Full time Part time | |
| c | SC09Q31 | c | SC18Q13 | Teachers with an <ISCED 5A> qualification | <i>In PISA 2003: "Teachers with an <ISCED5A> qualification in <pedagogy>"</i> |
| | SC09Q32 | | SC18Q23 | Full time Part time | |
| Q11 | | Q26 | | Regarding your school, who has a considerable responsibility for the following tasks? | In your school, who has the main responsibility for: |
| a | SC11Q01 | a | SC26Q01 | Selecting teachers for hire | selecting teachers for hire? |
| b | SC11Q02 | b | SC26Q02 | Firing teachers | firing teachers? |
| c | SC11Q03 | c | SC26Q03 | Establishing teachers' starting salaries | establishing teachers' starting salaries? |
| d | SC11Q04 | d | SC26Q04 | Determining teachers' salaries increases | determining teachers' salary increases? |
| e | SC11Q05 | e | SC26Q05 | Formulating the school budget | formulating the school budget? |
| f | SC11Q06 | f | SC26Q06 | Deciding on budget allocations within the school | deciding on budget allocations within the school? |
| g | SC11Q07 | g | SC26Q07 | Establishing student disciplinary policies | establishing student disciplinary policies? |
| h | SC11Q08 | h | SC26Q08 | Establishing student assessment policies | establishing student assessment policies? |
| i | SC11Q09 | i | SC26Q09 | Approving students for admission to the school | approving students for admittance to the school? |
| j | SC11Q10 | j | SC26Q10 | Choosing which textbooks are used | choosing which textbooks are used? |
| k | SC11Q11 | k | SC26Q11 | Determining course content | determining course content? |
| l | SC11Q12 | l | SC26Q12 | Deciding which courses are offered | deciding which courses are offered? |
| | | | | Principal or teachers | Not a main responsibility of the school |
| | | | | <School governing board> | School's <governing board> |
| | | | | <Regional or local education authority> | Principal |
| | | | | National education authority | <Department Head> Teacher(s) |
| Q12 | | Q27 | | Regarding your school, which of the following bodies exert a direct influence on decision making about staffing, budgeting, instructional content and assessment practices? | In your school, which of the following <bodies> exert a direct influence on decision making about staffing, budgeting, instructional content and assessment practises? |
| a | SC12Q01 | a | SC27Q01 | Regional or national education authorities (e.g. inspectorates) | <i>Unchanged</i> |
| b | SC12Q02 | b | SC27Q02 | The school's <governing board> | <i>Unchanged</i> |
| c | SC12Q03 | d | SC27Q04 | Parent groups | <i>Unchanged</i> |
| d | SC12Q04 | e | SC27Q05 | Teacher groups (e.g. Staff Association, curriculum committees, trade union) | <i>Unchanged</i> |
| e | SC12Q05 | f | SC27Q06 | Student groups (e.g. Student Association, youth organisation) | <i>Unchanged</i> |
| f | SC12Q06 | g | SC27Q07 | External examination boards | <i>Unchanged</i> |
| | | | | Staffing | <i>Unchanged</i> |
| | | | | Budgeting | <i>Unchanged</i> |
| | | | | Instructional content | <i>Unchanged</i> |
| | | | | Assessment practices | <i>Unchanged</i> |
| Q13a | SC13Q01 | Q9 | SC09Q01 | About how many computers are available in the school altogether? | In your school, about how many computers are: in the school altogether? |
| Q13b | SC13Q02 | b | SC09Q02 | About how many of these computers are available for instruction? | available to 15-year-old students? |
| Q13c | SC13Q03 | e | SC09Q05 | About how many computers in the school are connected to the Internet/World Wide Web? | connected to the Internet/World Wide Web? |

[Part 3/3]

Table A4.3 School questionnaire

| PISA 2006 Question number | PISA 2006 Variable name | PISA 2003 Question number | PISA 2003 Variable name | PISA 2006 English version | Summary of changes from PISA 2003 |
|---------------------------|-------------------------|---------------------------|-------------------------|---|---|
| Q14 | | Q8 | | Is your school's capacity to provide instruction hindered by any of the following? | Is your school's capacity to provide instruction hindered by a shortage or inadequacy of any of the following? |
| a | SC14Q01 | b | SC08Q02 | A lack of qualified science teachers | Availability of qualified Science teachers |
| b | SC14Q02 | a | SC08Q01 | A lack of qualified mathematics teachers | Availability of qualified Mathematics teachers |
| c | SC14Q03 | c | SC08Q03 | A lack of qualified <test language> teachers | Availability of qualified <test language> teachers |
| f | SC14Q06 | h | SC08Q08 | A lack of other support personnel | Availability of support personnel. |
| g | SC14Q07 | t | SC08Q20 | Shortage or inadequacy of science laboratory equipment | Science laboratory equipment and materials |
| h | SC14Q08 | l | SC08Q09 | Shortage or inadequacy of instructional materials (e.g. textbooks) | Instructional materials (e.g. textbooks) |
| i | SC14Q09 | o | SC08Q15 | Shortage or inadequacy of computers for instruction | Computers for instruction |
| k | SC14Q11 | p | SC08Q16 | Shortage or inadequacy of computer software for instruction | Computer software for instruction |
| l | SC14Q12 | r | SC08Q18 | Shortage or inadequacy of library materials | Library materials |
| m | SC14Q13 | s | SC08Q19 | Shortage or inadequacy of audio-visual resources Not at all Very little To some extent A lot | Audio-visual resources |
| Q17 | | Q13 | | In your school, are achievement data used in any of the following <accountability procedures>? | In your school, are assessments of <15-year-old students> used for any of the following purposes? |
| c | SC17Q03 | f | SC13Q06 | Achievement data are used in evaluation of teachers' performance | To make judgements about teachers' effectiveness |
| Q19 | | Q10 | | How much consideration is given to the following factors when students are admitted to your school? | <i>Unchanged</i> |
| a | SC19Q01 | a | SC10Q01 | Residence in a particular area | <i>Unchanged</i> |
| b | SC19Q02 | b | SC10Q02 | Student's academic record (including placement tests) | <i>Unchanged</i> |
| c | SC19Q03 | c | SC10Q03 | Recommendation of feeder schools | <i>Unchanged</i> |
| d | SC19Q04 | d | SC10Q04 | Parents' endorsement of the instructional or religious philosophy of the school | <i>Unchanged</i> |
| e | SC19Q05 | e | SC10Q05 | Student's need or desire for a special programme | <i>Unchanged</i> |
| f | SC19Q06 | f | SC10Q06 | Attendance of other family members at the school (past or present) Prerequisite High priority Considered Not considered | <i>Unchanged</i> |



APPENDIX 5 Mapping of ISCED to years

[Part 1/1]

Table A5.1 Mapping of ISCED to accumulated years of education

| | ISCED 1 | ISCED 2 | ISCED 3B or 3C | ISCED 3A or 4 | ISCED 5B | ISCED 5A or 6 |
|---------------------------------|---------|---------|----------------|---------------|----------|---------------|
| OECD | | | | | | |
| Australia | 6.0 | 10.0 | 11.0 | 12.0 | 14.0 | 15.0 |
| Austria | 4.0 | 9.0 | 12.0 | 12.5 | 15.0 | 17.0 |
| Belgium | 6.0 | 9.0 | 12.0 | 12.0 | 14.5 | 17.0 |
| Canada | 6.0 | 9.0 | 12.0 | 12.0 | 15.0 | 17.0 |
| Czech Republic | 5.0 | 9.0 | 11.0 | 13.0 | 16.0 | 16.0 |
| Denmark | 6.0 | 9.0 | 12.0 | 12.0 | 15.0 | 17.0 |
| England, Wales & North, Ireland | 6.0 | 9.0 | 12.0 | 13.0 | 15.0 | 16.0 |
| Finland | 6.0 | 9.0 | 12.0 | 12.0 | 14.5 | 16.5 |
| France | 5.0 | 9.0 | 12.0 | 12.0 | 14.0 | 15.0 |
| Germany | 4.0 | 10.0 | 13.0 | 13.0 | 15.0 | 18.0 |
| Greece | 6.0 | 9.0 | 11.5 | 12.0 | 15.0 | 17.0 |
| Hungary | 4.0 | 8.0 | 10.5 | 12.0 | 13.5 | 16.5 |
| Iceland | 7.0 | 10.0 | 13.0 | 14.0 | 16.0 | 18.0 |
| Ireland | 6.0 | 9.0 | 12.0 | 12.0 | 14.0 | 16.0 |
| Italy | 5.0 | 8.0 | 12.0 | 13.0 | 16.0 | 17.0 |
| Japan | 6.0 | 9.0 | 12.0 | 12.0 | 14.0 | 16.0 |
| Korea | 6.0 | 9.0 | 12.0 | 12.0 | 14.0 | 16.0 |
| Luxembourg | 6.0 | 9.0 | 12.0 | 13.0 | 16.0 | 17.0 |
| Mexico | 6.0 | 9.0 | 12.0 | 12.0 | 14.0 | 16.0 |
| Netherlands | 6.0 | 10.0 | | 12.0 | | 16.0 |
| New Zealand | 5.5 | 10.0 | 11.0 | 12.0 | 14.0 | 15.0 |
| Norway | 6.0 | 9.0 | 12.0 | 12.0 | 14.0 | 16.0 |
| Poland | | 8.0 | 11.0 | 12.0 | 15.0 | 16.0 |
| Portugal | 6.0 | 9.0 | 12.0 | 12.0 | 15.0 | 17.0 |
| Scotland | 7.0 | 11.0 | 13.0 | 13.0 | 16.0 | 16.0 |
| Slovak Republic | 4.5 | 8.5 | 12.0 | 12.0 | 13.5 | 17.5 |
| Spain | 5.0 | 8.0 | 10.0 | 12.0 | 13.0 | 16.5 |
| Sweden | 6.0 | 9.0 | 11.5 | 12.0 | 14.0 | 15.5 |
| Switzerland | 6.0 | 9.0 | 12.5 | 12.5 | 14.5 | 17.5 |
| Turkey | 5.0 | 8.0 | 11.0 | 11.0 | 13.0 | 15.0 |
| United States | 6.0 | 9.0 | | 12.0 | 14.0 | 16.0 |
| Partners | | | | | | |
| Argentina | 6.0 | 10.0 | 12.0 | 12.0 | 14.5 | 17.0 |
| Azerbaijan | 4.0 | 9.0 | 11.0 | 11.0 | 14.0 | 17.0 |
| Brazil | 4.0 | 8.0 | 11.0 | 11.0 | 14.5 | 16.0 |
| Bulgaria | 4.0 | 8.0 | 12.0 | 12.0 | 15.0 | 17.5 |
| Chile | 6.0 | 8.0 | 12.0 | 12.0 | 16.0 | 17.0 |
| Colombia | 5.0 | 9.0 | 11.0 | 11.0 | 14.0 | 15.5 |
| Croatia | 4.0 | 8.0 | 11.0 | 12.0 | 15.0 | 17.0 |
| Estonia | 4.0 | 9.0 | 12.0 | 12.0 | 15.0 | 16.0 |
| Hong Kong-China | 6.0 | 9.0 | 11.0 | 13.0 | 14.0 | 16.0 |
| Indonesia | 6.0 | 9.0 | 12.0 | 12.0 | 14.0 | 15.0 |
| Israel | 6.0 | 9.0 | 12.0 | 12.0 | 15.0 | 15.0 |
| Jordan | 6.0 | 10.0 | 12.0 | 12.0 | 14.5 | 16.0 |
| Kyrgyzstan | 4.0 | 8.0 | 11.0 | 10.0 | 13.0 | 15.0 |
| Latvia | 3.0 | 8.0 | 11.0 | 11.0 | 16.0 | 16.0 |
| Liechtenstein | 5.0 | 9.0 | 11.0 | 13.0 | 14.0 | 17.0 |
| Lithuania | 3.0 | 8.0 | 11.0 | 11.0 | 15.0 | 16.0 |
| Macao-China | 6.0 | 9.0 | 11.0 | 12.0 | 15.0 | 16.0 |
| Montenegro | 4.0 | 8.0 | 11.0 | 12.0 | 15.0 | 16.0 |
| Qatar | 6.0 | 9.0 | 12.0 | 12.0 | 15.0 | 16.0 |
| Romania | 4.0 | 8.0 | 11.5 | 12.5 | 14.0 | 16.0 |
| Russian Federation | 4.0 | 9.0 | 11.5 | 12.0 | | 15.0 |
| Serbia | 4.0 | 8.0 | 11.0 | 12.0 | 14.5 | 17.0 |
| Slovenia | 4.0 | 8.0 | 11.0 | 12.0 | 15.0 | 16.0 |
| Chinese Taipei | 6.0 | 9.0 | 12.0 | 12.0 | 14.0 | 16.0 |
| Thailand | 6.0 | 9.0 | 12.0 | 12.0 | 14.0 | 16.0 |
| Tunisia | 6.0 | 9.0 | 12.0 | 13.0 | 16.0 | 17.0 |
| Uruguay | 6.0 | 9.0 | 12.0 | 12.0 | 15.0 | 17.0 |



APPENDIX 6 National household possession items

[Part 1/2]

Table A6.1 National household possession items

| | SI13Q15 | SI13Q16 | SI13Q17 |
|--|--|---|--|
| OECD | | | |
| Australia | Cable/Pay TV | Digital Camera | Plasma TV |
| Austria | MP3 Player | Digital Camera | Digital Video Camera |
| Belgium (Flemish region) | Home Cinema | Alarm System | Plasma or LCD TV |
| Belgium (French and German regions) | Home Cinema (LCD screen...) | Alarm System | Housekeeper |
| Canada | MP3 Player/iPod | Subscription to a Daily Newspaper | Central Air Conditioning |
| Czech Republic | Digital Camera (not part of a mobile phone) | Digital Video Camera | Personal Discman or MP3 Player |
| Denmark | Colour Printer | MP3 Player | Digital Camera |
| Finland | Digital Camera | Wide Screen TV | Fitness Equipment (e.g. exercise bike, rowing machine) |
| France | Flat Screen TV | Digital Camera (not part of a mobile phone) | Laptop Computer |
| Germany | Subscription to a Newspaper | Video Camera | ISDN Connection |
| Greece | Home Cinema | Cable TV (Nova, Filmnet, etc.) | Alarm System |
| Hungary | Automatic Washing Machine | Video Camera | Digital Camera (not part of a mobile phone) |
| Iceland | Security Service or Security System | Satellite Dish | Plasma TV or TV Projector |
| Ireland | MP3 Player (e.g. iPod) | Bedroom with an En-suite Bathroom | Premium Cable TV Package (e.g. Sky Movies, Sky Sports) |
| Italy | Antique Furniture | Plasma TV Set | Air Conditioning |
| Japan | Digital Camera | Plasma/Liquid Crystal TV | Clothing Dryer |
| Korea | Air Conditioning | Digital Camera | Water Purifier |
| Luxembourg | Digital Camera | MP3 Player | Flat Screen TV |
| Mexico | Pay TV | Telephone Line | Microwave Oven |
| Netherlands | Digital Camera (not part of mobile phone or laptop computer) | Piano | Laptop |
| New Zealand | Broadband Internet Connection | Digital Camera (not part of mobile phone) | Clothes Dryer |
| Norway | Cleaner | Plasma/LCD TV | Spa Bath |
| Poland | Cable TV with at least 30 channels | Digital Camera | Telescope or Microscope |
| Portugal | Cable TV or Satellite Dish | Plasma or LCD Screen TV | Central Heating or Air Conditioning Equipment |
| Slovak Republic | Video Camera | Digital Camera (not part of mobile phone) | Satellite Receiver or Cable TV |
| Spain | Video Camera | Satellite Dish or Digital TV Set | Home Cinema Set |
| Sweden | Piano | Video Camera | Wall TV |
| Switzerland & Liechtenstein | MP3 Player or iPod | Digital Camera | Digital Video Camera |
| Turkey | Air-Conditioning-type Heating and Cooling System | Treadmill (fitness equipment device) | Home Cinema System (5+1) |
| United Kingdom (England, Wales & Northern Ireland) | Digital TV | Digital Camcorder | Swimming Pool |
| United Kingdom (Scotland) | Video Camera | Plasma Screen TV | Broadband Internet Connection |
| United States | Guest Room | High-Speed Internet Connection | iPod or MP3 Player |



[Part 2/2]

Table A6.1 National household possession items

| | ST13Q15 | ST13Q16 | ST13Q17 |
|----------|-----------------------------|---|--|
| Partners | Argentina | Cable TV (Direct TV, Cablevision. etc.) | Telephone Line |
| | Azerbaijan | Satellite Dish | Video Camera |
| | Brazil | Personal Mobile Phone | Cable TV |
| | Bulgaria | Air Conditioning | Freezer |
| | Chile | Hot Water | Washing Machine |
| | Colombia | Refrigerator | Cable TV or Direct to Home TV |
| | Croatia | Video Camera | Clothes Dryer |
| | Estonia | Video Camera | Hi-Fi |
| | Hong Kong-China | Digital Camera / Video Recorder | Musical Instrument (e.g. piano, violin) |
| | Indonesia | Washing Machine | Motorcycle |
| | Israel | Home Alarm System | Digital Camera |
| | Jordan | Central Heating | Satellite Dish |
| | Kyrgyzstan | Camera | Vacuum Cleaner |
| | Latvia | Bicycle | Snowboard |
| | Switzerland & Liechtenstein | MP3 Player or iPod | Digital Camera |
| | Lithuania | Digital Camera | Press Subscription Edition (newspaper, magazine) |
| | Macao-China | Video Game Machine | Digital Camera |
| | Montenegro | Cable TV | Jacuzzi |
| | Qatar | MP3 Walkman | Digital Video Camera |
| | Romania | Video Camera / Digital Photo Camera | Cable TV |
| | Russian Federation | Digital Camera or Video Camera | Home Cinema |
| | Serbia | Digital Camera | Laundry Drying Machine |
| | Slovenia | Digital Camera or Video Camera | Personal MP3 Player |
| | Chinese Taipei | Musical Instrument | iPod |
| | Thailand | Air Conditioning | Washing Machine |
| | Tunisia | Satellite Dish | Digital Camera |
| | Uruguay | Television Subscription | Washing Machine |

APPENDIX 7 Exploratory and confirmatory factor analyses for the embedded items

[Part 1/2]

Table A7.1 Exploratory and confirmatory factor analyses (EFA and CFA) for the embedded items

| Item | EFA | | CFA | | | Conquest fit | Item labels |
|---------|-------------------------|-------|-----------------|--------------------|----------------------|--------------|----------------------------|
| | PROMAX ROTATED LOADINGS | | Two-dimensional | | | | |
| | 1 | 2 | Loadings | Explained variance | Unexplained variance | | |
| S408RNA | 0.59 | 0.07 | 0.613 | 0.38 | 0.62 | 1.05 | Wild Oat Grass |
| S408RNB | 0.62 | 0.09 | 0.62 | 0.38 | 0.62 | 0.94 | Wild Oat Grass |
| S408RNC | 0.64 | 0.07 | 0.624 | 0.39 | 0.61 | 0.92 | Wild Oat Grass |
| S413RNA | 0.72 | -0.16 | 0.515 | 0.27 | 0.73 | 1.04 | Plastic Age |
| S413RNB | 0.72 | -0.12 | 0.552 | 0.30 | 0.70 | 1.00 | Plastic Age |
| S413RNC | 0.70 | -0.10 | 0.579 | 0.34 | 0.66 | 1.02 | Plastic Age |
| S416RNA | 0.41 | 0.22 | 0.519 | 0.27 | 0.73 | 1.06 | The Moon |
| S416RNB | 0.37 | 0.26 | 0.517 | 0.27 | 0.73 | 1.08 | The Moon |
| S428RNA | 0.66 | 0.00 | 0.577 | 0.33 | 0.67 | 0.95 | Bacteria In Milk |
| S428RNB | 0.65 | -0.02 | 0.563 | 0.32 | 0.68 | 0.98 | Bacteria In Milk |
| S428RNC | 0.65 | 0.01 | 0.622 | 0.39 | 0.61 | 0.97 | Bacteria In Milk |
| S437RNA | 0.57 | -0.01 | 0.485 | 0.24 | 0.76 | 1.09 | Extinguishing Fires |
| S437RNB | 0.59 | -0.01 | 0.512 | 0.26 | 0.74 | 1.05 | Extinguishing Fires |
| S437RNC | 0.57 | 0.04 | 0.545 | 0.30 | 0.70 | 1.07 | Extinguishing Fires |
| S438RNA | 0.81 | -0.20 | 0.591 | 0.35 | 0.65 | 0.94 | Green Parks |
| S438RNB | 0.80 | -0.18 | 0.594 | 0.35 | 0.65 | 0.92 | Green Parks |
| S438RNC | 0.79 | -0.13 | 0.656 | 0.43 | 0.57 | 0.89 | Green Parks |
| S456RNA | 0.40 | 0.32 | 0.533 | 0.28 | 0.72 | 1.00 | The Cheetah |
| S456RNB | 0.38 | 0.36 | 0.552 | 0.30 | 0.70 | 0.99 | The Cheetah |
| S456RNC | 0.36 | 0.36 | 0.555 | 0.31 | 0.69 | 1.04 | The Cheetah |
| S466RNA | 0.55 | 0.05 | 0.507 | 0.26 | 0.74 | 1.04 | Forest Fires |
| S466RNB | 0.61 | 0.05 | 0.57 | 0.32 | 0.68 | 0.96 | Forest Fires |
| S466RNC | 0.51 | 0.15 | 0.549 | 0.30 | 0.70 | 1.05 | Forest Fires |
| S476RNA | 0.48 | 0.19 | 0.523 | 0.27 | 0.73 | 0.98 | Heart Surgery |
| S476RNB | 0.49 | 0.17 | 0.556 | 0.31 | 0.69 | 1.01 | Heart Surgery |
| S476RNC | 0.43 | 0.19 | 0.528 | 0.28 | 0.72 | 1.11 | Heart Surgery |
| S478RNA | 0.58 | 0.11 | 0.587 | 0.34 | 0.66 | 0.97 | Antibiotics |
| S478RNB | 0.58 | 0.09 | 0.58 | 0.34 | 0.66 | 0.99 | Antibiotics |
| S478RNC | 0.56 | 0.14 | 0.622 | 0.39 | 0.61 | 0.97 | Antibiotics |
| S485RNA | 0.43 | 0.24 | 0.538 | 0.29 | 0.71 | 1.02 | Acid Rain |
| S485RNB | 0.46 | 0.25 | 0.598 | 0.36 | 0.64 | 1.00 | Acid Rain |
| S485RNC | 0.50 | 0.12 | 0.538 | 0.29 | 0.71 | 1.06 | Acid Rain |
| S498RNA | 0.63 | 0.07 | 0.597 | 0.36 | 0.64 | 0.93 | Experimental Digestion |
| S498RNB | 0.63 | 0.10 | 0.623 | 0.39 | 0.61 | 0.92 | Experimental Digestion |
| S498RNC | 0.56 | 0.18 | 0.625 | 0.39 | 0.61 | 0.94 | Experimental Digestion |
| S508RNA | 0.52 | 0.15 | 0.585 | 0.34 | 0.66 | 0.98 | Genetically Modified Crops |
| S508RNB | 0.57 | 0.12 | 0.602 | 0.36 | 0.64 | 0.95 | Genetically Modified Crops |
| S508RNC | 0.50 | 0.17 | 0.599 | 0.36 | 0.64 | 1.02 | Genetically Modified Crops |
| S514RNA | 0.72 | -0.07 | 0.601 | 0.36 | 0.64 | 0.99 | Development And Disaster |
| S514RNB | 0.73 | -0.05 | 0.614 | 0.38 | 0.62 | 0.94 | Development And Disaster |
| S514RNC | 0.58 | 0.10 | 0.582 | 0.34 | 0.66 | 1.01 | Development And Disaster |
| S519RNA | 0.35 | 0.24 | 0.407 | 0.17 | 0.83 | 1.10 | Airbags |
| S519RNB | 0.34 | 0.22 | 0.416 | 0.17 | 0.83 | 1.15 | Airbags |
| S519RNC | 0.41 | 0.18 | 0.482 | 0.23 | 0.77 | 1.14 | Airbags |
| S521RNA | 0.63 | -0.04 | 0.526 | 0.28 | 0.72 | 0.99 | Cooking Outdoors |



[Part 2/2]

Table A7.1 Exploratory and confirmatory factor analyses (EFA and CFA) for the embedded items

| Item | EFA | | CFA | | | Conquest fit | Item labels |
|---------|-------------------------|-------------|-----------------|--------------------|----------------------|--------------|-----------------------------|
| | PROMAX ROTATED LOADINGS | | Two-dimensional | | | | |
| | 1 | 2 | Loadings | Explained variance | Unexplained variance | | |
| S521RNB | 0.61 | -0.04 | 0.504 | 0.25 | 0.75 | 1.04 | Cooking Outdoors |
| S524RNA | 0.64 | 0.07 | 0.625 | 0.39 | 0.61 | 0.94 | Penicillin Manufacture |
| S524RNB | 0.61 | 0.10 | 0.639 | 0.41 | 0.59 | 0.95 | Penicillin Manufacture |
| S524RNC | 0.63 | 0.07 | 0.637 | 0.41 | 0.59 | 0.95 | Penicillin Manufacture |
| S527RNA | 0.28 | 0.32 | 0.464 | 0.22 | 0.78 | 1.16 | Extinction Of The Dinosaurs |
| S527RNB | 0.19 | 0.45 | 0.475 | 0.23 | 0.77 | 1.18 | Extinction Of The Dinosaurs |
| S527RNC | 0.33 | 0.33 | 0.552 | 0.30 | 0.70 | 1.09 | Extinction Of The Dinosaurs |
| S408RSA | 0.13 | 0.44 | 0.38 | 0.14 | 0.86 | 0.97 | Wild Oat Grass |
| S408RSB | 0.04 | 0.50 | 0.43 | 0.18 | 0.82 | 0.98 | Wild Oat Grass |
| S408RSC | 0.14 | 0.42 | 0.41 | 0.16 | 0.84 | 1.01 | Wild Oat Grass |
| S416RSA | -0.02 | 0.44 | 0.29 | 0.09 | 0.91 | 1.01 | The Moon |
| S416RSB | -0.06 | 0.49 | 0.32 | 0.10 | 0.90 | 1.00 | The Moon |
| S416RSC | -0.02 | 0.51 | 0.36 | 0.13 | 0.87 | 1.01 | The Moon |
| S421RSA | 0.03 | 0.55 | 0.40 | 0.16 | 0.84 | 0.92 | Big And Small |
| S421RSC | 0.08 | 0.51 | 0.42 | 0.18 | 0.82 | 0.95 | Big And Small |
| S425RSA | -0.05 | 0.53 | 0.32 | 0.10 | 0.90 | 0.97 | Penguin Island |
| S425RSB | -0.04 | 0.53 | 0.35 | 0.12 | 0.88 | 0.96 | Penguin Island |
| S425RSC | 0.01 | 0.37 | 0.31 | 0.10 | 0.90 | 1.08 | Penguin Island |
| S426RSA | 0.05 | 0.52 | 0.37 | 0.14 | 0.86 | 0.97 | The Grand Canyon |
| S426RSB | 0.03 | 0.36 | 0.30 | 0.09 | 0.91 | 1.12 | The Grand Canyon |
| S426RSC | 0.04 | 0.54 | 0.40 | 0.16 | 0.84 | 0.95 | The Grand Canyon |
| S438RSA | 0.03 | 0.31 | 0.25 | 0.06 | 0.94 | 1.09 | Green Parks |
| S438RSB | 0.07 | 0.29 | 0.28 | 0.08 | 0.92 | 1.06 | Green Parks |
| S438RSC | 0.11 | 0.29 | 0.31 | 0.10 | 0.90 | 1.07 | Green Parks |
| S456RSA | 0.03 | 0.56 | 0.38 | 0.14 | 0.86 | 0.93 | The Cheetah |
| S456RSB | 0.07 | 0.46 | 0.36 | 0.13 | 0.87 | 0.98 | The Cheetah |
| S456RSC | -0.01 | 0.44 | 0.35 | 0.13 | 0.87 | 1.05 | The Cheetah |
| S465RSA | -0.02 | 0.39 | 0.26 | 0.07 | 0.93 | 1.04 | Different Climates |
| S465RSB | 0.04 | 0.40 | 0.30 | 0.09 | 0.91 | 1.04 | Different Climates |
| S476RSA | -0.07 | 0.51 | 0.31 | 0.10 | 0.90 | 0.99 | Heart Surgery |
| S476RSB | -0.15 | 0.49 | 0.25 | 0.06 | 0.94 | 1.03 | Heart Surgery |
| S476RSC | -0.17 | 0.56 | 0.25 | 0.06 | 0.94 | 0.96 | Heart Surgery |
| S477RSA | -0.07 | 0.52 | 0.31 | 0.10 | 0.90 | 0.98 | Mary Montagu |
| S477RSB | -0.08 | 0.41 | 0.29 | 0.08 | 0.92 | 1.09 | Mary Montagu |
| S477RSC | -0.11 | 0.52 | 0.31 | 0.10 | 0.90 | 0.99 | Mary Montagu |
| S485RSB | -0.01 | 0.51 | 0.36 | 0.13 | 0.87 | 0.97 | Acid Rain |
| S485RSC | -0.04 | 0.55 | 0.38 | 0.14 | 0.86 | 0.94 | Acid Rain |
| S498RSA | 0.02 | 0.46 | 0.33 | 0.11 | 0.89 | 1.00 | Experimental Digestion |
| S498RSB | -0.03 | 0.47 | 0.34 | 0.11 | 0.89 | 1.03 | Experimental Digestion |
| S519RSA | -0.12 | 0.51 | 0.29 | 0.08 | 0.92 | 1.02 | Airbags |
| S519RSB | -0.15 | 0.55 | 0.31 | 0.10 | 0.90 | 0.99 | Airbags |
| S519RSC | -0.08 | 0.44 | 0.26 | 0.07 | 0.93 | 1.06 | Airbags |
| S527RSB | -0.14 | 0.59 | 0.34 | 0.12 | 0.88 | 0.99 | Extinction Of The Dinosaurs |
| S527RSC | -0.09 | 0.64 | 0.40 | 0.16 | 0.84 | 0.93 | Extinction Of The Dinosaurs |

RMSEA 0.025



APPENDIX 8 PISA consortium, staff and consultants

PISA Technical Advisory Group

Keith Rust (Chair) (Westat, United States)
 Ray Adams (International Project Director, ACER)
 Aletta Grisay (Consultant, France)
 John de Jong (Language Testing Services, The Netherlands)
 Norman Verhelst (CITO, The Netherlands)
 Christian Monseur (Université de Liège, Belgium)
 Thierry Rocher (Ministère de l'Éducation Nationale, France) (From October 2005)
 David Kaplan (University of Wisconsin, United States) (From May 2005)
 Kentaro Yamamoto (ETS – New Jersey, United States) (From July 2006)
 Larry Hedges (Northwestern University, United States) (To July 2006)
 Rebecca Zwick (University of California – Santa Barbara, United States) (From March 2007)
 Steve May (Ministry of Education, New Zealand) (To October 2005)
 Pierre Foy (IEA Data Processing Centre, Germany) (To October 2005)
 J. Douglas Willms (University of New Brunswick, Canada) (To May 2005)
 Eugene Johnson (American Institutes for Research, United States) (To October 2005)

PISA Expert Groups

Science Expert Group

Rodger Bybee (Chair) (BSCS, Colorado Springs, United States)
 Ewa Bartnik (Warsaw University, Poland)
 Peter Fensham (Queensland University of Technology, Australia)
 Paulina Korsnakova (National Institute for Education, Slovak Republic)
 Robert Laurie (University of New Brunswick, Canada)
 Svein Lie (University of Oslo, Norway)
 Pierre Malléus (Ministère de l'Éducation nationale, de l'enseignement supérieur et de la recherche, France)
 Michaela Mayer (INVALSI, Italy)
 Robin Millar (University of York, UK)
 Yasushi Ogura (National Institute for Educational Policy Research, Japan)
 Manfred Prenzel (University of Kiel, Germany)
 Andrée Tiberghien (Université de Lyon, France)

Mathematics Expert Group

Jan de Lange (Chair) (Freudenthal Institute, Utrecht University, The Netherlands)
 Werner Blum (University of Kassel, Germany)
 John Dossey (Consultant, United States)
 Mogens Niss (University of Roskilde, Denmark)
 Zbigniew Marciniak (University of Warsaw, Poland)
 Yoshi Shimizu (Tsukuba University, Japan)

Reading Expert Group

John de Jong (Chair from September 2005) (Language Testing Services, The Netherlands)
 Irwin Kirsch (Chair to September 2005) (ETS – Princeton, United States)
 Dominique Lafontaine (Université de Liège, Belgium)
 Pirjo Linnakylä (University of Jyväskylä, Finland)
 Martine Rémond (Université de Paris 8 et IUFM de Créteil, France)
 Alan Davies (University of Edinburgh, UK)
 Marilyn Binkley (National Centre for Educational Statistics, United States)
 Stan Jones (Statistics Canada, Canada)



Questionnaire Expert Group

David Baker (Pennsylvania State University, United States)
 Rodger Bybee (BSCS, Colorado Springs, United States)
 Aletta Grisay (Consultant, France)
 David Kaplan (University of Wisconsin – Madison, United States)
 John Keeves (Flinders University, Australia)
 Reinhard Pekrun (University of Munich, Germany)
 Erich Ramseier (Abteilung Bildungsplanung und Evaluation, Switzerland)
 J. Douglas Willms (University of New Brunswick, Canada)

ACER

Ray Adams (International Project Director)
 Alla Berezner (Data management and analysis)
 Yan Bibby (Data processing and analysis)
 Wei Buttress (Project administration, quality monitoring)
 Mary Blackwood (Science test development)
 Renee Chow (Data processing and analysis)
 Judith Cosgrove (Data processing and analysis, national centre support)
 George Doukas (Data processing and analysis, computer-based assessment)
 Eveline Gebhardt (Data management and analysis)
 Sam Haldane (IT services, computer-based assessment)
 Dewi Handayani (Data processing, field operations)
 John Harding (Science test development)
 Jennifer Hong (Data processing, sampling)
 Marten Koomen (Management, computer-based assessment)
 Dulce Lay (Data processing, field operations, sampling)
 Le Tu Luc (Data processing and analysis)
 Tom Lumley (Reading test development)
 Helen Lye (Science test development)
 Greg Macaskill (Data management and processing, sampling)
 Fran Maher (Science test development)
 Ron Martin (Mathematics test development)
 Barry McCrae (Maths, Science, Reading test development)
 Pippa McKelvie (Project administration, data processing, quality monitoring)
 Joy McQueen (Reading test development)
 Juliette Mendelovits (Reading test development)
 Esther Michael (Administrative support)
 Martin Murphy (Field operations and sampling)
 Van Nguyen (Data processing and analysis)
 Gayle O'Connor (Science test development)
 Alla Routitsky (Data management and analysis), ACER – Data Analysis
 Dara Searle (Reading test development)
 Wolfram Schulz (Questionnaire development and analysis)
 Fionnuala Shortt (Data processing, quality monitoring)
 Ross Turner (Management, Mathematics test development)
 Daniel Urbach (Data processing and analysis)
 Maurice Walker (Sampling, questionnaire development and data analysis)
 Wahyu Wardono (Project administration, computer-based assessment)

CITO

Janny Harmsen (Project administration)
 Kees Lagerwaard (Mathematics test development)
 Ger Limpens (Mathematics test development)
 Norman Vorhelst (Technical advice, data analysis)
 Jose Bruens (Science test development)
 Joop Hendricx (Science test development)
 Annemarie de Knecht (Management)



Educational Testing Service (ETS)

Irwin Kirsch (Reading framework and test development)

NIER

Hanako Senuma (Mathematics test development)

Yasushi Ogura (Science test development)

Westat

Keith Rust (Director of the PISA Consortium for sampling and weighting, Chair of TAG)

Sheila Krawchuk (Sampling, weighting and quality monitoring)

Eugene Brown (Weighting)

Ming Chen (Weighting)

Fran Cohen (Weighting)

Joseph Croos (Weighting)

Susan Fuss (Sampling, weighting and quality monitoring)

Ismael Flores-Cervantes (Quality monitoring)

Amita Gopinath (Weighting)

Sharon Hirabayashi (Weighting)

John Lopdell (Weighting)

Shawn Lu (Weighting)

Christian Monseur (Consultant, sampling, weighting and quality monitoring)

Merl Robinson (Quality Monitoring)

William Wall (Weighting)

Erin Wilson (Sampling and weighting)

Other Consultants

Steve Dept (cApStAn Linguistic Quality Control, Belgium) (Translation and verification services)

Andrea Ferrari (cApStAn Linguistic Quality Control, Belgium) (Translation and verification services)

Oystein Gutterrud (ILS, University of Oslo, Norway) (Science test development)

Marit Kjaernsli (ILS, University of Oslo, Norway) (Science test development)

Svein Lie (ILS, University of Oslo, Norway) (Science test development)

Rolf V. Olsen (ILS, University of Oslo, Norway) (Science test development)

Steffen Brandt (IPN, University of Kiel, Germany) (Science test development)

Claus Carstensen (IPN, University of Kiel, Germany) (Science test development)

Barbara Dreschel (IPN, University of Kiel, Germany) (Science test development)

Marcus Hammann (IPN, University of Kiel, Germany) (Science test development)

Michael Komorek (IPN, University of Kiel, Germany) (Science test development)

Manfred Prezel (IPN, University of Kiel, Germany) (Science test development, Questionnaire framework development)

Peter Nentwig (IPN, University of Kiel, Germany) (Science test development)

Tina Seidel (IPN, University of Kiel, Germany) (Questionnaire framework development)

Martin Senkbeil (IPN, University of Kiel, Germany) (Science test development)

Béatrice Halleux (Consultant, Belgium) (Translation/verification referee, French source development)

Aletta Grisay (Consultant, France) (Technical advice, French source development, questionnaire development)

Anne-Laure Monnier (Consultant, France) (French source development)

Christian Monseur (Université de Liège, Belgium) (Technical advice, data analysis)

Eve Recht (Consultant, Australia) (Editorial services)

Peter Watson (Consultant, Australia) (Science test development)

Alexander Wiseman (University of Tulsa, United States) (Questionnaire framework development)



Reader's Guide

Country codes – the following country codes are used in this report:

OECD countries

| | |
|-----|---------------------------------|
| AUS | Australia |
| AUT | Austria |
| BEL | Belgium |
| BEF | Belgium (French Community) |
| BEN | Belgium (Flemish Community) |
| CAN | Canada |
| CAE | Canada (English Community) |
| CAF | Canada (French Community) |
| CZE | Czech Republic |
| DNK | Denmark |
| FIN | Finland |
| FRA | France |
| DEU | Germany |
| GRC | Greece |
| HUN | Hungary |
| ISL | Iceland |
| IRL | Ireland |
| ITA | Italy |
| JPN | Japan |
| KOR | Korea |
| LUX | Luxembourg |
| LXF | Luxembourg (French Community) |
| LXG | Luxembourg (German Community) |
| MEX | Mexico |
| NLD | Netherlands |
| NZL | New Zealand |
| NOR | Norway |
| POL | Poland |
| PRT | Portugal |
| SVK | Slovak Republic |
| ESP | Spain |
| ESB | Spain (Basque Community) |
| ESC | Spain (Catalonian Community) |
| ESS | Spain (Castillian Community) |
| SWE | Sweden |
| CHE | Switzerland |
| CHF | Switzerland (French Community) |
| CHG | Switzerland (German Community) |
| CHI | Switzerland (Italian Community) |

| | |
|-----|----------------|
| TUR | Turkey |
| GBR | United Kingdom |
| IRL | Ireland |
| SCO | Scotland |
| USA | United States |

Partner countries and economies

| | |
|-----|----------------------------|
| ARG | Argentina |
| AZE | Azerbaijan |
| BGR | Bulgaria |
| BRA | Brazil |
| CHL | Chile |
| COL | Colombia |
| EST | Estonia |
| HKG | Hong Kong-China |
| HRV | Croatia |
| IDN | Indonesia |
| JOR | Jordan |
| KGZ | Kyrgyzstan |
| LIE | Liechtenstein |
| LTU | Lithuania |
| LVA | Latvia |
| LVL | Latvia (Latvian Community) |
| LVR | Latvia (Russian Community) |
| MAC | Macao-China |
| MNE | Montenegro |
| QAT | Qatar |
| ROU | Romania |
| RUS | Russian Federation |
| SRB | Serbia |
| SVN | Slovenia |
| TAP | Chinese Taipei |
| THA | Thailand |
| TUN | Tunisia |
| URY | Uruguay |



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List of abbreviations – the following abbreviations are used in this report:

| | | | |
|-------|---|---------|--|
| ACER | Australian Council for Educational Research | NPM | National Project Manager |
| AGFI | Adjusted Goodness-of-Fit Index | OECD | Organisation for Economic Cooperation and Development |
| BRR | Balanced Repeated Replication | PISA | Programme for International Student Assessment |
| CBAS | Computer Based Assessment of Science | PPS | Probability Proportional to Size |
| CFA | Confirmatory Factor Analysis | PGB | PISA Governing Board |
| CFI | Comparative Fit Index | PQM | PISA Quality Monitor |
| CITO | National Institute for Educational Measurement, The Netherlands | PSU | Primary Sampling Units |
| CIVED | Civic Education Study | QAS | Questionnaire Adaptations Spreadsheet |
| DIF | Differential Item Functioning | RMSEA | Root Mean Square Error of Approximation |
| ENR | Enrolment of 15-year-olds | RN | Random Number |
| ESCS | PISA Index of Economic, Social and Cultural Status | SC | School Co-ordinator |
| ETS | Educational Testing Service | SE | Standard Error |
| IAEP | International Assessment of Educational Progress | SD | Standard Deviation |
| I | Sampling Interval | SEM | Structural Equation Modelling |
| ICR | Inter-Country Coder Reliability Study | SMEG | Subject Matter Expert Group |
| ICT | Information Communication Technology | SPT | Study Programme Table |
| IEA | International Association for the Evaluation of Educational Achievement | TA | Test Administrator |
| INES | OECD Indicators of Education Systems | TAG | Technical Advisory Group |
| IRT | Item Response Theory | TCS | Target Cluster Size |
| ISCED | International Standard Classification of Education | TIMSS | Third International Mathematics and Science Study |
| ISCO | International Standard Classification of Occupations | TIMSS-R | Third International Mathematics and Science Study – Repeat |
| ISEI | International Socio-Economic Index | VENR | Enrolment for very small schools |
| MENR | Enrolment for moderately small school | WLE | Weighted Likelihood Estimates |
| MOS | Measure of size | | |
| NCQM | National Centre Quality Monitor | | |
| NDP | National Desired Population | | |
| NEP | National Enrolled Population | | |
| NFI | Normed Fit Index | | |
| NIER | National Institute for Educational Research, Japan | | |
| NNFI | Non-Normed Fit Index | | |



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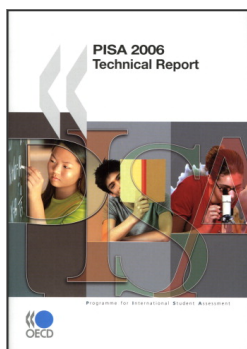


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