

TIMSS 2011

The TIMSS 2011 Students Bullied at School Scale, Fourth Grade

The Students Bullied at School (SBS) scale was created based on students' responses to the six statements described below. See [Creating and Interpreting TIMSS and PIRLS 2011 Context Questionnaire Scales](#) for more information on how the scales were formed.

Exhibit 1: Items in the TIMSS 2011 Students Bullied at School Scale, Fourth Grade

During this year, how often have any of the following things happened to you at school?

| | Never | A few times a year | Once or twice a month | At least once a week |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| ASBG09A 1) I was made fun of or called names ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ASBG09B 2) I was left out of games or activities by other students ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ASBG09C 3) Someone spread lies about me ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ASBG09D 4) Something was stolen from me ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ASBG09E 5) I was hit or hurt by other student(s) (e.g., shoving, hitting, kicking) ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ASBG09F 6) I was made to do things I didn't want to do by other students ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Exhibit 2: Item Parameters for the TIMSS 2011 Students Bullied at School Scale, Fourth Grade

| Item | delta | tau_1 | tau_2 | tau_3 |
|---------|----------|---------|----------|----------|
| ASBG09A | -0.41282 | 0.30355 | -0.24707 | -0.05648 |
| ASBG09B | -0.66585 | 0.21886 | 0.11132 | -0.33018 |
| ASBG09C | -0.69983 | 0.14933 | -0.03218 | -0.11715 |
| ASBG09D | -1.06791 | 0.37187 | -0.15157 | -0.22030 |
| ASBG09E | -0.75952 | 0.12218 | -0.10165 | -0.02053 |
| ASBG09F | -1.26236 | 0.47901 | 0.20078 | -0.67979 |

Exhibit 3: Scale Transformation Constants

Scale Transformation Constants

$$A = 10.07835$$

$$B = 2.16286$$

$$\text{Transformed Scale Score} = 10.07835 + 2.16286 \cdot \text{Logit Scale Score}$$

Exhibit 4: Equivalence Table of the Raw Score and the Transformed Scale Score

| Raw Score | Transformed Scale Score | Cutpoint | Raw Score | Transformed Scale Score | Cutpoint |
|-----------|-------------------------|----------|-----------|-------------------------|----------|
| 0 | 3.73248 | | 10 | 8.55234 | |
| 1 | 5.33273 | | 11 | 8.81111 | |
| 2 | 6.03274 | | 12 | 9.09142 | |
| 3 | 6.50669 | | 13 | 9.39257 | |
| 4 | 6.88065 | | 14 | 9.72963 | |
| 5 | 7.20553 | | 15 | 10.13086 | 10.1 |
| 6 | 7.49888 | | 16 | 10.63775 | |
| 7 | 7.77250 | | 17 | 11.39780 | |
| 8 | 8.03992 | | 18 | 13.17863 | |
| 9 | 8.29522 | 8.3 | | | |

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Students Bullied at School Scale, Fourth Grade

| Country | Cronbach's Alpha Reliability Coefficient | Percent of Variance Explained | Factor Loadings for Each Item | | | | | |
|-----------------------|--|-------------------------------|-------------------------------|---------|---------|---------|---------|---------|
| | | | ASBG09A | ASBG09B | ASBG09C | ASBG09D | ASBG09E | ASBG09F |
| Armenia | 0.75 | 45 | 0.66 | 0.70 | 0.65 | 0.61 | 0.72 | 0.68 |
| Australia | 0.80 | 51 | 0.75 | 0.71 | 0.75 | 0.62 | 0.75 | 0.68 |
| Austria | 0.79 | 49 | 0.75 | 0.72 | 0.75 | 0.58 | 0.72 | 0.65 |
| Azerbaijan | 0.78 | 49 | 0.68 | 0.67 | 0.69 | 0.71 | 0.75 | 0.72 |
| Bahrain | 0.74 | 43 | 0.65 | 0.62 | 0.72 | 0.59 | 0.70 | 0.66 |
| Belgium (Flemish) | 0.77 | 47 | 0.76 | 0.71 | 0.73 | 0.53 | 0.73 | 0.63 |
| Chile | 0.78 | 47 | 0.69 | 0.70 | 0.73 | 0.62 | 0.73 | 0.65 |
| Chinese Taipei | 0.75 | 45 | 0.73 | 0.68 | 0.68 | 0.55 | 0.69 | 0.65 |
| Croatia | 0.71 | 41 | 0.71 | 0.68 | 0.70 | 0.52 | 0.67 | 0.55 |
| Czech Republic | 0.75 | 45 | 0.73 | 0.61 | 0.76 | 0.57 | 0.69 | 0.65 |
| Denmark | 0.75 | 46 | 0.71 | 0.62 | 0.74 | 0.56 | 0.72 | 0.69 |
| England | 0.80 | 50 | 0.73 | 0.70 | 0.78 | 0.60 | 0.74 | 0.67 |
| Finland | 0.78 | 48 | 0.76 | 0.69 | 0.75 | 0.56 | 0.74 | 0.64 |
| Georgia | 0.69 | 42 | 0.65 | 0.51 | 0.73 | 0.63 | 0.70 | 0.66 |
| Germany | 0.76 | 46 | 0.74 | 0.67 | 0.73 | 0.53 | 0.75 | 0.60 |
| Hong Kong SAR | 0.76 | 46 | 0.65 | 0.68 | 0.77 | 0.58 | 0.68 | 0.68 |
| Hungary | 0.75 | 45 | 0.71 | 0.70 | 0.74 | 0.54 | 0.71 | 0.60 |
| Iran, Islamic Rep. of | 0.67 | 39 | 0.67 | 0.53 | 0.67 | 0.55 | 0.68 | 0.62 |
| Ireland | 0.80 | 50 | 0.74 | 0.71 | 0.76 | 0.65 | 0.74 | 0.66 |

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Students Bullied at School Scale, Fourth Grade (Continued)

| Country | Cronbach's Alpha Reliability Coefficient | Percent of Variance Explained | Factor Loadings for Each Item | | | | | |
|----------------------------------|--|-------------------------------|-------------------------------|---------|---------|---------|---------|---------|
| | | | ASBG09A | ASBG09B | ASBG09C | ASBG09D | ASBG09E | ASBG09F |
| Italy | 0.72 | 42 | 0.70 | 0.64 | 0.71 | 0.57 | 0.66 | 0.58 |
| Japan | 0.80 | 51 | 0.74 | 0.74 | 0.74 | 0.64 | 0.70 | 0.72 |
| Kazakhstan | 0.74 | 45 | 0.70 | 0.57 | 0.73 | 0.64 | 0.71 | 0.64 |
| Korea, Rep. of | 0.77 | 47 | 0.71 | 0.70 | 0.71 | 0.56 | 0.74 | 0.67 |
| Kuwait | 0.76 | 46 | 0.69 | 0.65 | 0.70 | 0.63 | 0.73 | 0.65 |
| Lithuania | 0.74 | 45 | 0.74 | 0.64 | 0.72 | 0.56 | 0.72 | 0.60 |
| Malta | 0.74 | 43 | 0.67 | 0.64 | 0.72 | 0.60 | 0.67 | 0.63 |
| Morocco | 0.72 | 42 | 0.59 | 0.63 | 0.68 | 0.60 | 0.71 | 0.67 |
| Netherlands | 0.78 | 48 | 0.77 | 0.68 | 0.72 | 0.53 | 0.75 | 0.66 |
| New Zealand | 0.80 | 50 | 0.72 | 0.69 | 0.77 | 0.63 | 0.74 | 0.68 |
| Northern Ireland | 0.79 | 49 | 0.73 | 0.72 | 0.76 | 0.60 | 0.72 | 0.66 |
| Norway | 0.77 | 47 | 0.74 | 0.65 | 0.74 | 0.58 | 0.71 | 0.67 |
| Oman | 0.66 | 38 | 0.65 | 0.47 | 0.68 | 0.61 | 0.67 | 0.59 |
| Poland | 0.79 | 49 | 0.75 | 0.65 | 0.76 | 0.60 | 0.74 | 0.68 |
| Portugal | 0.75 | 45 | 0.73 | 0.64 | 0.73 | 0.57 | 0.74 | 0.59 |
| Qatar | 0.76 | 46 | 0.67 | 0.63 | 0.73 | 0.63 | 0.71 | 0.69 |
| Romania | 0.74 | 44 | 0.67 | 0.67 | 0.73 | 0.59 | 0.70 | 0.63 |
| Russian Federation | 0.69 | 40 | 0.74 | 0.49 | 0.72 | 0.48 | 0.74 | 0.56 |
| Saudi Arabia | 0.73 | 42 | 0.67 | 0.61 | 0.67 | 0.62 | 0.71 | 0.62 |
| Serbia | 0.73 | 43 | 0.69 | 0.62 | 0.71 | 0.60 | 0.69 | 0.60 |
| Singapore | 0.74 | 44 | 0.61 | 0.63 | 0.74 | 0.63 | 0.70 | 0.65 |
| Slovak Republic | 0.77 | 47 | 0.73 | 0.68 | 0.74 | 0.59 | 0.73 | 0.65 |
| Slovenia | 0.80 | 51 | 0.74 | 0.73 | 0.76 | 0.66 | 0.72 | 0.66 |
| Spain | 0.75 | 44 | 0.69 | 0.66 | 0.71 | 0.55 | 0.72 | 0.65 |
| Sweden | 0.75 | 45 | 0.73 | 0.63 | 0.72 | 0.54 | 0.73 | 0.65 |
| Thailand | 0.66 | 37 | 0.61 | 0.57 | 0.60 | 0.55 | 0.66 | 0.64 |
| Tunisia | 0.67 | 38 | 0.66 | 0.57 | 0.64 | 0.54 | 0.66 | 0.62 |
| Turkey | 0.72 | 42 | 0.64 | 0.60 | 0.73 | 0.61 | 0.68 | 0.59 |
| United Arab Emirates | 0.72 | 42 | 0.62 | 0.59 | 0.71 | 0.62 | 0.68 | 0.64 |
| United States | 0.79 | 49 | 0.73 | 0.71 | 0.76 | 0.64 | 0.73 | 0.64 |
| Yemen | 0.80 | 50 | 0.68 | 0.65 | 0.75 | 0.70 | 0.75 | 0.72 |
| Sixth Grade Participants | | | | | | | | |
| Botswana | 0.41 | 25 | 0.54 | 0.39 | 0.55 | 0.39 | 0.59 | 0.52 |
| Honduras | 0.76 | 46 | 0.64 | 0.66 | 0.71 | 0.63 | 0.72 | 0.68 |
| Yemen | 0.72 | 42 | 0.65 | 0.59 | 0.69 | 0.60 | 0.73 | 0.63 |
| Benchmarking Participants | | | | | | | | |
| Alberta, Canada | 0.80 | 50 | 0.72 | 0.71 | 0.75 | 0.65 | 0.74 | 0.68 |
| Ontario, Canada | 0.80 | 50 | 0.74 | 0.69 | 0.76 | 0.63 | 0.73 | 0.66 |

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Students Bullied at School Scale, Fourth Grade (Continued)

| Country | Cronbach's Alpha Reliability Coefficient | Percent of Variance Explained | Factor Loadings for Each Item | | | | | |
|--------------------|--|-------------------------------|-------------------------------|---------|---------|---------|---------|---------|
| | | | ASBG09A | ASBG09B | ASBG09C | ASBG09D | ASBG09E | ASBG09F |
| Quebec, Canada | 0.78 | 48 | 0.75 | 0.68 | 0.76 | 0.60 | 0.72 | 0.63 |
| Abu Dhabi, UAE | 0.71 | 41 | 0.63 | 0.58 | 0.71 | 0.61 | 0.66 | 0.66 |
| Dubai, UAE | 0.73 | 42 | 0.62 | 0.60 | 0.73 | 0.62 | 0.69 | 0.64 |
| Florida, US | 0.79 | 48 | 0.75 | 0.69 | 0.75 | 0.63 | 0.71 | 0.64 |
| North Carolina, US | 0.79 | 49 | 0.71 | 0.68 | 0.77 | 0.69 | 0.71 | 0.62 |

Exhibit 6: Relationship Between the TIMSS 2011 Students Bullied at School Scale, Fourth Grade, and TIMSS 2011 Achievement

| Country | Pearson's Correlation with Achievement | | | | Variance in Achievement Accounted for by Difference Between Regions of the Scale (η^2) | |
|-----------------------|--|---------|-------------------|---------|---|---------|
| | (r) | | (r ²) | | Mathematics | Science |
| | Mathematics | Science | Mathematics | Science | | |
| Armenia | 0.14 | 0.13 | 0.02 | 0.02 | 0.02 | 0.02 |
| Australia | 0.10 | 0.09 | 0.01 | 0.01 | 0.02 | 0.01 |
| Austria | 0.08 | 0.07 | 0.01 | 0.01 | 0.01 | 0.01 |
| Azerbaijan | 0.20 | 0.21 | 0.04 | 0.04 | 0.04 | 0.05 |
| Bahrain | 0.19 | 0.20 | 0.04 | 0.04 | 0.03 | 0.04 |
| Belgium (Flemish) | 0.11 | 0.14 | 0.01 | 0.02 | 0.02 | 0.03 |
| Chile | 0.18 | 0.15 | 0.03 | 0.02 | 0.04 | 0.03 |
| Chinese Taipei | 0.09 | 0.09 | 0.01 | 0.01 | 0.01 | 0.01 |
| Croatia | 0.12 | 0.13 | 0.01 | 0.02 | 0.03 | 0.02 |
| Czech Republic | 0.12 | 0.12 | 0.01 | 0.01 | 0.03 | 0.03 |
| Denmark | 0.09 | 0.08 | 0.01 | 0.01 | 0.02 | 0.02 |
| England | 0.09 | 0.11 | 0.01 | 0.01 | 0.02 | 0.02 |
| Finland | 0.07 | 0.06 | 0.00 | 0.00 | 0.01 | 0.01 |
| Georgia | 0.19 | 0.21 | 0.04 | 0.05 | 0.04 | 0.05 |
| Germany | 0.10 | 0.12 | 0.01 | 0.02 | 0.02 | 0.03 |
| Hong Kong SAR | 0.11 | 0.08 | 0.01 | 0.01 | 0.02 | 0.01 |
| Hungary | 0.07 | 0.06 | 0.01 | 0.00 | 0.02 | 0.01 |
| Iran, Islamic Rep. of | 0.01 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ireland | 0.19 | 0.17 | 0.04 | 0.03 | 0.05 | 0.05 |
| Italy | 0.08 | 0.06 | 0.01 | 0.00 | 0.01 | 0.01 |
| Japan | 0.04 | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 |
| Kazakhstan | 0.04 | 0.03 | 0.00 | 0.00 | 0.01 | 0.01 |
| Korea, Rep. of | 0.04 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 |
| Kuwait | 0.18 | 0.17 | 0.03 | 0.03 | 0.04 | 0.04 |
| Lithuania | 0.15 | 0.16 | 0.02 | 0.02 | 0.03 | 0.03 |
| Malta | 0.16 | 0.13 | 0.03 | 0.02 | 0.03 | 0.02 |

Exhibit 6: Relationship Between the TIMSS 2011 Students Bullied at School Scale, Fourth Grade, and TIMSS 2011 Achievement (Continued)

| Country | Pearson's Correlation with Achievement | | | | Variance in Achievement Accounted for by Difference Between Regions of the Scale (η^2) | |
|----------------------------------|--|-------------|-------------------|-------------|---|-------------|
| | (r) | | (r ²) | | Mathematics | Science |
| | Mathematics | Science | Mathematics | Science | | |
| Morocco | 0.14 | 0.13 | 0.02 | 0.02 | 0.02 | 0.02 |
| Netherlands | 0.08 | 0.07 | 0.01 | 0.01 | 0.02 | 0.01 |
| New Zealand | 0.15 | 0.14 | 0.02 | 0.02 | 0.03 | 0.02 |
| Northern Ireland | 0.11 | 0.11 | 0.01 | 0.01 | 0.03 | 0.02 |
| Norway | 0.11 | 0.07 | 0.01 | 0.00 | 0.02 | 0.01 |
| Oman | 0.11 | 0.11 | 0.01 | 0.01 | 0.01 | 0.01 |
| Poland | 0.08 | 0.08 | 0.01 | 0.01 | 0.01 | 0.02 |
| Portugal | 0.09 | 0.08 | 0.01 | 0.01 | 0.01 | 0.01 |
| Qatar | 0.17 | 0.22 | 0.03 | 0.05 | 0.04 | 0.06 |
| Romania | 0.22 | 0.20 | 0.05 | 0.04 | 0.04 | 0.04 |
| Russian Federation | 0.10 | 0.07 | 0.01 | 0.01 | 0.01 | 0.01 |
| Saudi Arabia | 0.12 | 0.18 | 0.02 | 0.03 | 0.02 | 0.04 |
| Serbia | 0.10 | 0.12 | 0.01 | 0.01 | 0.02 | 0.03 |
| Singapore | 0.17 | 0.14 | 0.03 | 0.02 | 0.03 | 0.02 |
| Slovak Republic | 0.12 | 0.11 | 0.01 | 0.01 | 0.02 | 0.02 |
| Slovenia | 0.13 | 0.10 | 0.02 | 0.01 | 0.03 | 0.02 |
| Spain | 0.09 | 0.10 | 0.01 | 0.01 | 0.01 | 0.01 |
| Sweden | 0.09 | 0.11 | 0.01 | 0.01 | 0.01 | 0.02 |
| Thailand | 0.12 | 0.11 | 0.01 | 0.01 | 0.01 | 0.01 |
| Tunisia | 0.17 | 0.19 | 0.03 | 0.04 | 0.03 | 0.04 |
| Turkey | 0.20 | 0.19 | 0.04 | 0.03 | 0.05 | 0.04 |
| United Arab Emirates | 0.16 | 0.17 | 0.03 | 0.03 | 0.03 | 0.03 |
| United States | 0.12 | 0.11 | 0.01 | 0.01 | 0.02 | 0.02 |
| Yemen | 0.09 | 0.06 | 0.01 | 0.00 | 0.01 | 0.01 |
| International Median | 0.11 | 0.11 | 0.01 | 0.01 | 0.02 | 0.02 |
| Sixth Grade Participants | | | | | | |
| Botswana | 0.13 | 0.14 | 0.02 | 0.02 | 0.02 | 0.02 |
| Honduras | 0.13 | 0.09 | 0.02 | 0.01 | 0.01 | 0.01 |
| Yemen | 0.07 | 0.07 | 0.01 | 0.01 | 0.01 | 0.01 |
| Benchmarking Participants | | | | | | |
| Alberta, Canada | 0.12 | 0.15 | 0.01 | 0.02 | 0.02 | 0.03 |
| Ontario, Canada | 0.07 | 0.07 | 0.01 | 0.00 | 0.02 | 0.01 |
| Quebec, Canada | 0.13 | 0.13 | 0.02 | 0.02 | 0.02 | 0.02 |
| Abu Dhabi, UAE | 0.14 | 0.15 | 0.02 | 0.02 | 0.03 | 0.03 |
| Dubai, UAE | 0.17 | 0.18 | 0.03 | 0.03 | 0.04 | 0.04 |
| Florida, US | 0.12 | 0.12 | 0.01 | 0.01 | 0.02 | 0.02 |
| North Carolina, US | 0.12 | 0.10 | 0.02 | 0.01 | 0.02 | 0.02 |