Students were scored according to their principals’ responses concerning thirteen school and classroom resources on the Mathematics Resource Shortages scale. Students in schools where instruction was Not Affected by resource shortages had a score on the scale of at least 11.1. This TIMSS questionnaire scale was established in 2011 based on the combined response distribution of all countries that participated in TIMSS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

A tilde (~) indicates insufficient data to report achievement.

An “r” indicates data are available for at least 70% but less than 85% of the students. An “s” indicates data are available for at least 50% but less than 70% of the students.

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### Exhibit 5.7: Instruction Affected by Mathematics Resource Shortages – Principals’ Reports

Students were scored according to their principals’ responses concerning thirteen school and classroom resources on the Mathematics Resource Shortages scale. Students in schools where instruction was Not Affected by resource shortages had a score on the scale of at least 11.1. This TIMSS questionnaire scale was established in 2011 based on the combined response distribution of all countries that participated in TIMSS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

A tilde (~) indicates insufficient data to report achievement.

An “r” indicates data are available for at least 70% but less than 85% of the students. An “s” indicates data are available for at least 50% but less than 70% of the students.
## Benchmarking Participants

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Achievement</th>
<th>Percent of Students</th>
<th>Average Scale Score</th>
<th>Difference in Average Scale Score from 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quebec, Canada</td>
<td>550 (3.4)</td>
<td>78 (4.8)</td>
<td>12.3 (0.17)</td>
<td>0.4 (0.22)</td>
</tr>
<tr>
<td>Dubai, UAE</td>
<td>537 (3.1)</td>
<td>56 (0.3)</td>
<td>11.1 (0.02)</td>
<td>0.7 (0.03)</td>
</tr>
<tr>
<td>Norway (B)</td>
<td>490 (3.3)</td>
<td>46 (4.0)</td>
<td>11.1 (0.12)</td>
<td>0.0 (0.16)</td>
</tr>
<tr>
<td>Buenos Aires, Argentina</td>
<td>433 (5.7)</td>
<td>45 (4.7)</td>
<td>10.7 (0.19)</td>
<td>0.0</td>
</tr>
<tr>
<td>Florida, US</td>
<td>510 (13.5)</td>
<td>31 (8.4)</td>
<td>10.4 (0.27)</td>
<td>-1.0 (0.44)</td>
</tr>
<tr>
<td>Ontario, Canada</td>
<td>517 (3.5)</td>
<td>27 (4.7)</td>
<td>10.6 (0.16)</td>
<td>-0.2 (0.22)</td>
</tr>
<tr>
<td>Abu Dhabi, UAE</td>
<td>476 (14.0)</td>
<td>21 (3.8)</td>
<td>9.4 (0.22)</td>
<td>0.2 (0.28)</td>
</tr>
</tbody>
</table>

### How much is your school's capacity to provide instruction affected by a shortage or inadequacy of the following?

#### A. General School Resources

1. Instructional materials (e.g., textbooks)
2. Supplies (e.g., papers, pencils, materials)
3. School buildings and grounds
4. Heating/cooling and lighting systems
5. Instructional space (e.g., classrooms)
6. Technologically competent staff
7. Audio-visual resources for delivery of instruction (e.g., interactive white boards, digital projectors)
8. Computer technology for teaching and learning (e.g., computers or tablets for student use)

#### B. Resources for Mathematics Instruction

1. Teachers with a specialization in mathematics
2. Computer software/applications for mathematics instruction
3. Library resources relevant to mathematics instruction
4. Calculators for mathematics instruction
5. Concrete objects or materials to help students understand quantities or procedures

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**SOURCE:** IEA's Trends in International Mathematics and Science Study – TIMSS 2015