

## Press Release

# Shoresh Institution: Why Are Israel's PISA Achievements so Low?

**A new study by Dr. Noam Gruber of the Shoresh Institution identifies a major factor underlying Israel's consistently poor performance on the PISA exams**

Israel's fundamental educational measures indicate potential: Israeli parents have relatively high levels of education compared to their counterparts in most other countries; Israelis express a strong awareness of the importance of mathematics study; and there is great willingness among Israelis to invest money and time in assisting pupils outside of the regular school framework.

Yet, despite these basic factors, which are generally associated with scholastic success, Israeli pupils' achievements on the PISA math exams, administered every three years, are consistently among the lowest of all developed countries. Moreover, the disparity of math achievements within Israel is the highest in the developed world. This Shoresh Institution study identifies key explanations for the poor outcomes and proposes routes for improvement.

[to download the complete study](#) (in Hebrew; English forthcoming)  
[to download the press release](#) (in English)

### Main findings:

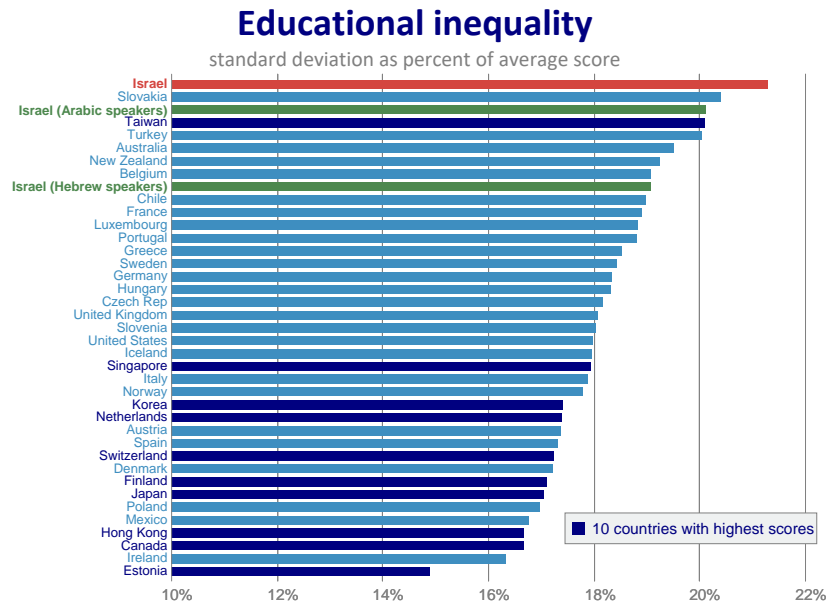
- High scores do not come at expense of large inequality – rather, the opposite is true: high scores tend to go with low educational inequality.
- The gap in scores between the average for all participating countries and Israel is larger at the highest grade percentile than at the 91<sup>st</sup> percentile.
- The level of maternal education is positively related to pupil achievements.
- Israeli mothers are more educated. In addition, awareness of the importance of mathematics in Israel is the greatest in the developed world.
- Contrary to their beliefs, Israeli pupils are less disciplined than is common in developed countries. The impact of discipline on test scores increases with class size.
- Raising Israeli discipline levels to the developed-country average would increase Israeli pupils' mean PISA scores by 20-25 points.

**A detailed summary of the main findings is provided below.**

**High scores do not come at expense of large inequality – rather, the opposite is true: high scores tend to go with low educational inequality.**

This Shores Institute study notes that, in nine of the ten countries whose PISA mathematics scores are the world’s highest (Taiwan is the exception), inequality levels are low. This is the case despite the great social and ethnic diversity that characterizes some of these countries.

As Dr. Noam Gruber shows, the situation in Israel is quite the opposite. Israel exhibits the largest achievement disparities in the developed world. At the same time, Israeli pupils' average achievement level is one of the lowest in the West – even with the exclusion of boys studying in the Haredi (ultra-Orthodox) education system, where there is no core curriculum and the leadership prevents its pupils from taking the PISA exams.

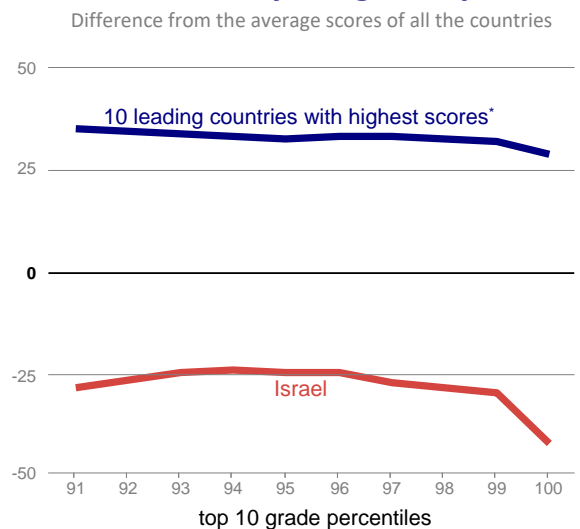


Source: Noam Gruber, Shores Institute for Socioeconomic Research  
Data: PISA 2012

**The gap in scores between the average for all participating countries and Israel is larger at the highest grade percentile than at the 91<sup>st</sup> percentile**

Dr. Gruber: “There is no factual basis for the conventional wisdom ascribing Israeli pupils' low achievement levels to the population's weaker groups, while assuming that the People of the Book's highest-achieving pupils are similar to their counterparts in other countries. At the highest grade percentiles – those of Israel's top pupils – there is no narrowing of the gap. In fact, the opposite occurs. The score achieved by pupils at Israel's 91<sup>st</sup> percentile is 28 points lower than the mean 91<sup>st</sup> percentile score for all the developed countries. In the highest grade percentile, the gap between the developed countries and Israel rises to 42 points.”

**Math scores in top 10 grade percentiles**



Source: Noam Gruber, Shores Institute for Socioeconomic Research  
Data: PISA 2012

\* Ten leading countries: Canada, Estonia, Finland, Hong Kong, Japan, Korea, Netherlands, Singapore, Switzerland, Taiwan

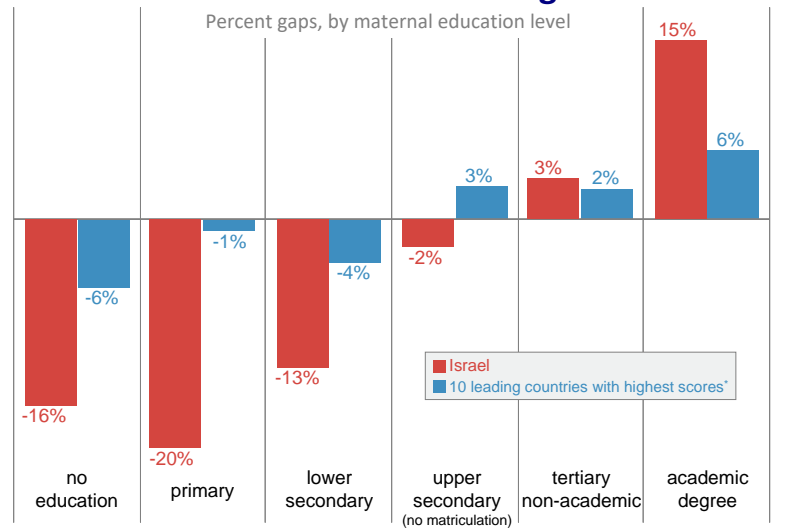
**The level of maternal education is positively related to pupil achievements**

The Shores Institute study found a positive relationship between maternal educational levels and pupils' educational achievements. Dr. Gruber: "The findings indicate that a country wanting to close educational gaps has to provide more assistance to pupils whose parents are less educated. This is especially true in Israel, where the relationship between a mother's educational level and her children's achievements is particularly strong."

When an Israeli mother's educational level is no higher than primary school, her children's mean score is 20% lower than that of pupils whose mother holds a high school matriculation certificate.

At the other end of the educational spectrum, the mean score of an Israeli pupil whose mother holds an academic degree is 15% higher than that of a pupil whose mother completed high school with a matriculation certificate. The 10 countries scoring highest on the PISA math exam also show a positive relationship between maternal education and pupil achievement – but the relationship is substantially weaker than in Israel.

**Gaps in grades relative to pupil's whose mother matriculated from high school**



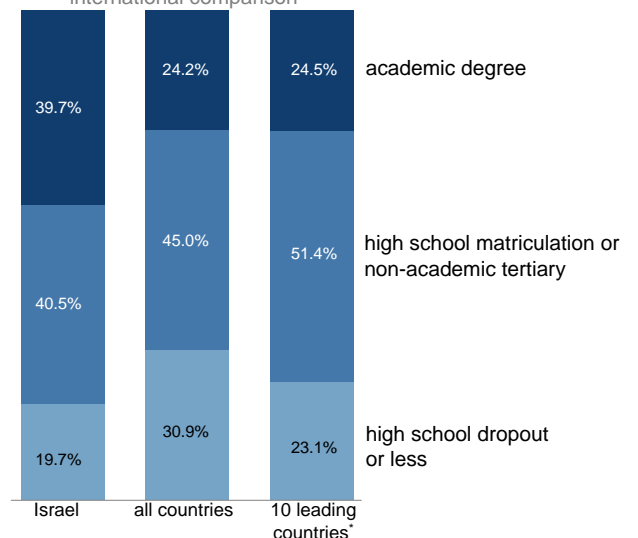
Source: Noam Gruber, Shores Institute for Socioeconomic Research  
Data: PISA 2012

\* Ten leading countries: Canada, Estonia, Finland, Hong Kong, Japan, Korea, Netherlands, Singapore, Switzerland, Taiwan

**Israeli mothers are more educated while awareness of the importance of mathematics in Israel is the greatest in the developed world**

Given the strong relationship between maternal education and pupil achievements, Israeli pupils ought to have a distinct advantage over most of the developed world. Dr. Gruber finds that parental educational levels, and especially maternal educational levels, are very high in Israel. Additionally, the Shores Institute study demonstrates that the importance attached by Israeli parents and pupils to math study is the highest in the developed world, with a relatively large number of math enrichment lessons for Israeli pupils.

**Mother's education**  
international comparison



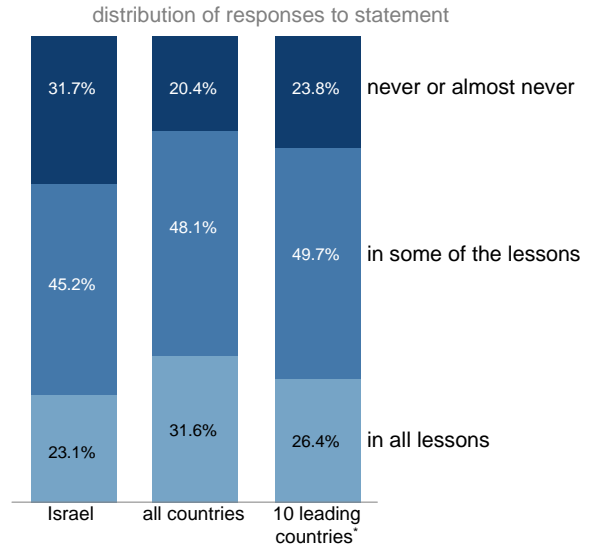
Source: Noam Gruber, Shores Institute for Socioeconomic Research  
Data: PISA 2012

\* Ten leading countries: Canada, Estonia, Finland, Hong Kong, Japan, Korea, Netherlands, Singapore, Switzerland, Taiwan

**A major factor underlying Israeli pupils' poor PISA showing: lower levels of discipline**

A comparison of Israel to the average of the other countries in the Shores study indicates that a relatively greater share of Israeli pupils believe that their schools are highly disciplined. Nearly a third of Israeli pupils state that the sentence, "Pupils do not listen to what the teacher says" does not relate to them at all, or nearly at all. By contrast, less than a quarter of the pupils in the high-achieving countries believe that this is the case in their schools while a fifth of the pupils in all countries feel this way.

**"Pupils don't listen to what the teacher says"**

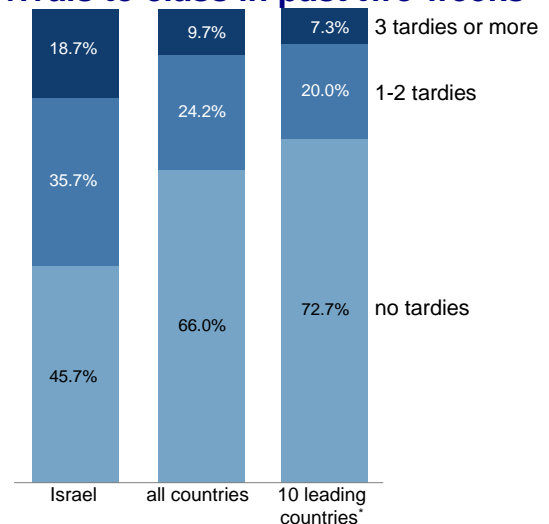


Source: Noam Gruber, Shores Institution for Socioeconomic Research  
Data: PISA 2012

In contrast to the subjective metric based on pupils' perceptions of school discipline, an objective measure points in the opposite direction. Dr. Gruber finds that the percentage of Israeli pupils who were late to school at least 3 times in two weeks was almost double that of the percentage for all countries, and more than double the percentage in the highest-achieving countries.

On the other hand, the Shores study shows that nearly three-fourths of children in the high-achieving countries do not come late to school at all, compared with less than half of the Israeli pupils.

**Distribution of unapproved tardy arrivals to class in past two weeks**



Source: Noam Gruber, Shores Institution for Socioeconomic Research  
Data: PISA 2012

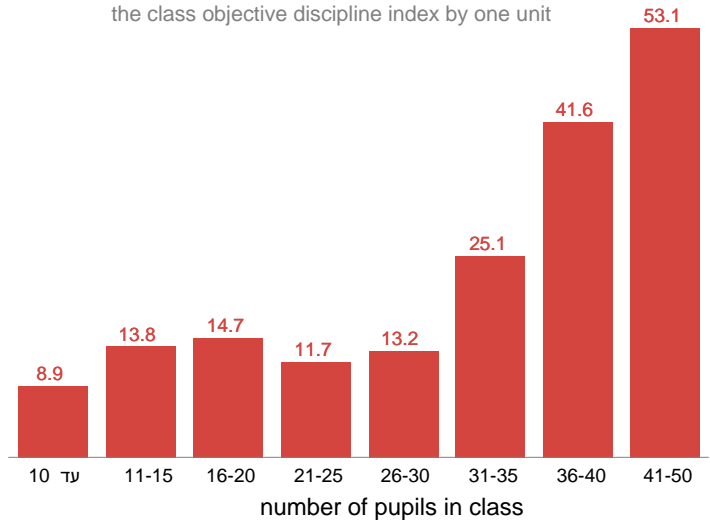
## The impact of discipline on test scores increases with class size

In a statistical examination that controls for many relevant variables such as country, parental education, math instruction hours, private lessons, class size and individual pupil discipline level, Dr. Gruber finds that the average discipline level of the class has a strong impact on pupil achievement. This impact grows as class size increases.

In other words, the Shoreshe Institution study finds that a low-discipline atmosphere has a stronger adverse effect on pupil achievements in large classes than in small classes. This finding is of particular relevance to Israel, which is characterized by both large classes and low discipline levels.

### Impact of discipline on score, by class size\*

Addition to score as a result of increasing the class objective discipline index by one unit



Source: Noam Gruber, Shoreshe Institution for Socioeconomic Research  
Data: PISA 2012  
\*Addition to score after controlling for country, parental education (of the pupil and of the class average), hours of mathematics, private lessons, class size and individual discipline.

## How to raise Israeli pupils' achievement levels

Dr. Gruber's research indicates that raising Israel's discipline level to the developed-country average would raise the country's mean PISA score by 20 to 25 points, even without reducing class size. Moreover, because this increase in discipline would also substantially improve teacher working conditions and occupational status, it is reasonable to assume that it would help attract quality manpower to the teaching profession, eventually leading to an additional improvement in Israeli pupil achievements.

The Shoreshe Institution for Socioeconomic Research, headed by Professor Dan Ben-David, is an independent, non-partisan policy research center providing evidence-based analyses of Israel's economy and civil society. The Shoreshe Institution informs Israel's leading policymakers and the general public, both inside and outside the country, through briefings and accessible publications on the source, nature and scope of core issues facing the country, providing policy options that ensure and improve the well-being of all segments of Israeli society and create more equitable opportunities for its citizens.

**For details, or to arrange an interview, please contact Dr. Noam Gruber (054-4693253)**