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Are low performers missing learning opportunities?

- In almost every country and economy that participated in PISA 2012, low performers showed less perseverance than better-performing students. For instance, about 32% of low performers said they give up on solving problems easily compared to only 13% of better-performing students who so reported.
- Low performers perceive their efforts in after-school learning activities to be unproductive. Despite similar self-reported efforts invested in studying for mathematics quizzes, 81% of top performers in mathematics agreed that they were prepared for mathematics exams compared to only 56% of low performers.
- Low performers who did mathematics as an extracurricular activity were much more interested in mathematics than those who did not.

You only get what you give. There is no elevator to success; you have to take the stairs. I'm a great believer in luck, and I find the harder I work the more I have of it. There is a multitude of quotes conveying the idea that hard work pays off, and there is a kernel of truth in all of them: hard work may not be all that matters, but without it, nobody can reach his or her full potential. So if most people agree that effort is needed for academic success, why are so many struggling students not investing enough of it to close the gap with better-performing students? The PISA report, *Low-performing Students: Why They Fall Behind and How to Help Them Succeed,* offers some clues.

Low performers are less perseverant…

In almost every PISA-participating education system, low performers showed less perseverance than better-performing students. For instance, about 32% of low-performing students across OECD countries said that students who give up easily were "very much like them" or "mostly like them", whereas only 13% of better-performing students said so. Differences between both groups of students were particularly large in Jordan, Portugal, Qatar, the Slovak Republic and the United Arab Emirates. This lack of perseverance could be interpreted as showing that low performers are partly responsible for their own academic failures. After all, students have little say in their schools' educational resources or in who their classmates, parents and teachers are; but they alone determine how much effort they put into academic tasks.

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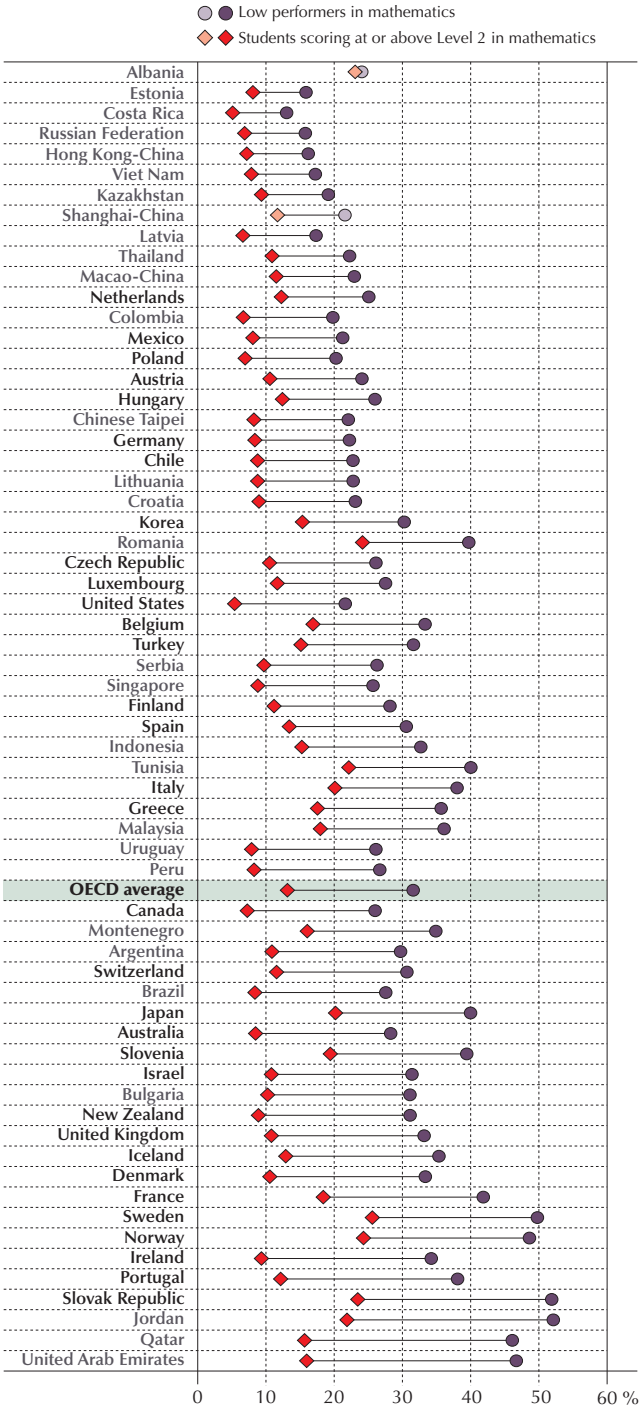
Perseverance and performance

Percentage of students who reported that the statement "When confronted with a problem, I give up easily" describes someone "very much like me" or "mostly like me"



Note: Statistically significant differences between students who are low performers and those who are not are marked in a darker tone.

Countries and economies are ranked in ascending order of the difference between low performers and students scoring at or above Level 2 in mathematics.

Source: OECD, PISA 2012 Database.

...and they have their reasons.

But there might be a valid reason for their half-hearted engagement: they perceive some of their efforts in school to be unproductive. PISA results show that low performers do not always shun activities that require numeracy skills and mental exertion. In fact, in PISA 2012 they were more likely to say they played chess or participated in a mathematics club, and they were only somewhat less likely than top performers to say that they "work hard on their mathematics homework" or "study hard for mathematics quizzes".

But – and here is the crucial point – when they were asked about the outcomes of these efforts, the gap with better-performing students widened considerably. For instance, whereas 81% of top performers in mathematics agreed or strongly agreed that they were "prepared for mathematics exams", only 56% of low performers agreed with that statement. A smaller (but still large) difference was observed when similar questions related to homework were asked of students.

Engaging low performers is the first, crucial step.

These findings suggest that low-performing students need more time to complete mathematics tasks, and that their learning time can too easily turn into wasted time if they are left to their own devices. Which comes first, inefficiency or disengagement, is difficult to tell; but one thing is clear: low performers need to feel more productive. Some studies have suggested making tasks easier, or combining easy and difficult tasks strategically, so that low performers gain confidence and choose to engage in academic tasks. An alternative that avoids watering down standards is to provide solid support with homework and exam preparation – which entails little or no extra cost – to ensure that struggling students succeed without becoming exhausted in the process.

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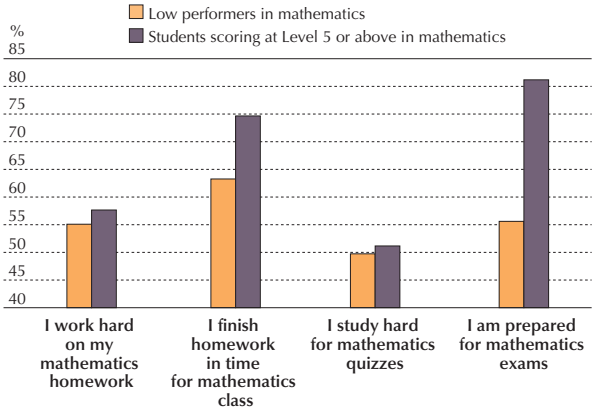
Effort and readiness in mathematics

Percentage of students who reported that they "agree" or "strongly agree" with the following statements, OECD average



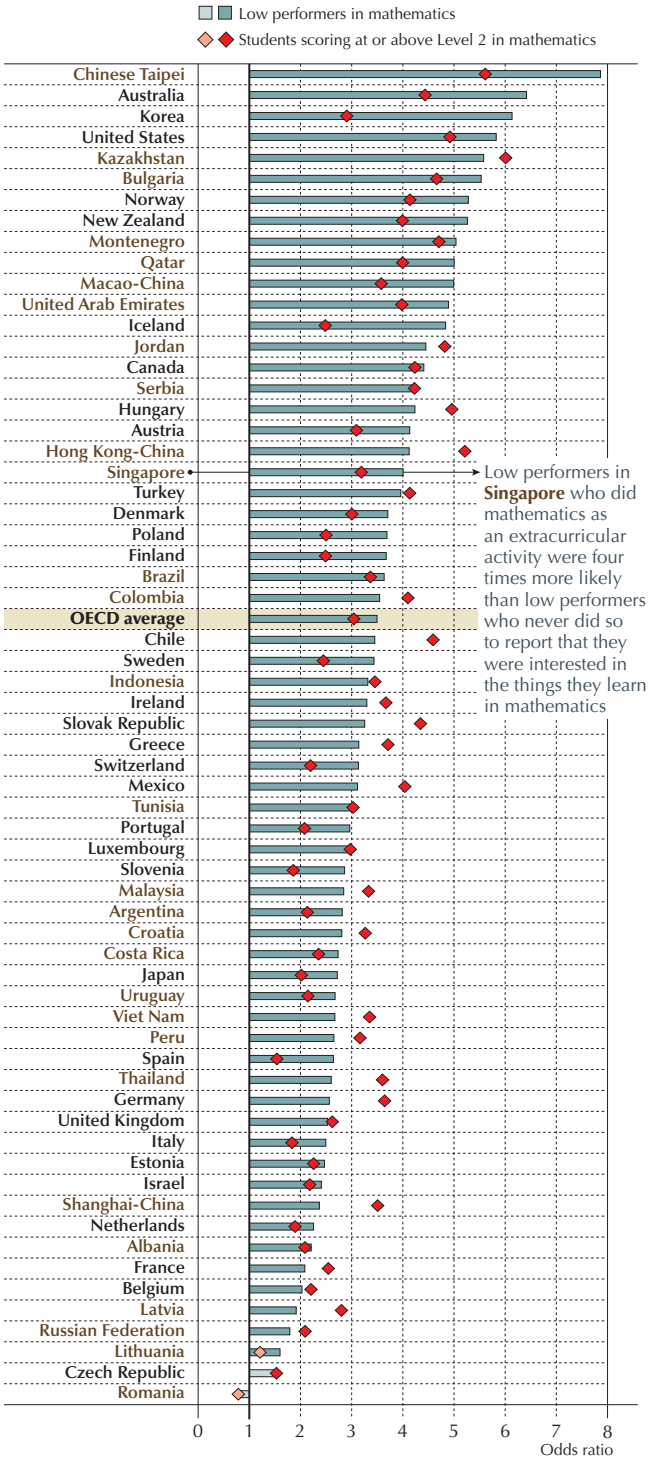
Source: OECD, PISA 2012 Database (*Low-performing Students*), Tables 3.6a, b, c and d.

StatLink http://dx.doi.org/10.1787/9789264250246-table83-en

The good news is that PISA results also show that students who did mathematics as an extracurricular activity were much more interested in mathematics than students who did not. Across OECD countries, students who reported doing mathematics as an extracurricular activity "sometimes", "often" or "always" were about three times more likely to be interested in the things they learn in mathematics than students who never did mathematics as an extracurricular activity, and this positive association is even stronger among low performers. These findings suggest that the extracurricular mathematics in which struggling students participate may be more engaging than usually believed or, alternatively, that low performers who are interested in mathematics are more likely to participate in these kinds of activities. Either way, low-performing students should see these activities as a way of enjoying mathematics and gaining confidence, rather than as punishment for poor performance.

Doing mathematics as an extracurricular activity and interest in mathematics

Increased likelihood of agreeing with the statement "I am interested in the things I learn in mathematics" associated with doing mathematics as an extracurricular activity



Note: Statistically significant odds ratios are marked in a darker tone.
Countries and economies are ranked in descending order of the odds ratio among low performers in mathematics.
Source: OECD, PISA 2012 Database.

This kind of academic support, which ideally improves students' self-confidence gradually as students move from acquiring a skill to mastering it, should be offered as early as possible. And, to make the support even more effective, it could be offered as part of a school-wide intervention for struggling students. In Finland, for example, multi-professional care groups, consisting of the school principal, a special education teacher, the school nurse, the school psychologist, a social worker, teachers and parents, meet periodically to discuss the progress of individual students.

The bottom line: Although low performers should invest more time and effort in their studies, they seldom do. One reason is because they often feel that they get no return on their investment: more studying does not automatically lead to better marks in school. But with the right kind of in-school support, including creative and engaging mathematics-related activities, low performers might begin to develop an interest in mathematics and positive attitudes towards learning – both of which could propel them back to their books.

For more information

Contact Alfonso Echazarra (alfonso.echazarra@oecd.org)

See OECD (2016), *Low-performing Students: Why They Fall Behind and How to Help Them Succeed*, PISA. OECD Publishing, Paris.

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Are disadvantaged students given equal opportunities to learn?

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