

02

Lessons on delivering education outcomes

- > Equitable enrolment
- > Student achievement
- > Productive livelihood
- > Cross-cutting drivers

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Lessons on delivering education outcomes



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Many different actions can be taken to improve a country's education system, but unique characteristics of individual systems can influence the impact these interventions deliver. Evidence from Indonesia and around the world shows clearly that initiatives are not uniformly successful. In examining the experiences and successes of programmes in various contexts, our study pinpointed a number of areas with significant potential to enhance the quality of education in Indonesia.

Identifying global best practice in education reform can be challenging because each school system presents its own idiosyncrasies around factors such as resources available, leadership commitment, prevailing infrastructure, and initial situation. In addition, studies into the effectiveness of reform vary in terms of scope, evaluation criteria, methodology, and other elements.⁶⁴

As our analysis has shown, however, three outcomes – equitable enrolment, student achievement, and productive livelihood – recur in discussions about measuring the effectiveness of education reform (Exhibit 6). Drawing lessons from experiences in other systems points to an array of factors that can be influenced to create impact around these outcomes in Indonesia's unique environment. In addition, cross-cutting measures can affect multiple outcomes.

⁶⁴ - Interpreting the evidence to draw generalised lessons is challenging because of variation across contexts, duration and quality of studies, as well as the details of specific interventions studied. Isolate the impact of one specific intervention from the broader portfolio of reforms being undertaken at a given time is almost difficult. The approach used in this study seeks to determine the impact of different education interventions on equitable enrolment, student achievement, and the link to productive livelihood.

EXHIBIT 6 :: Evidence of impact assessment revealed strongest drivers across each outcome

Education outcomes	Strongest evidence of impact (highlights)
 Equitable enrolment	<p> Financial-related factors: Labelled cash transfer programmes have resulted in a ↓70% difference in drop-out rates</p> <p> Cultural and perception factors: Funds provided to supply bicycles to girls increased secondary school enrolment by those who lived more than 3km away by ↑9%</p>
 Student achievement	<p> Teacher quality: In Indonesia, ↑10% higher teacher assessment score results in ↑1.7% higher student post-test scores</p> <p> School leadership: ↑10% in student test scores as a result of principals who improved their instructional abilities by one standard deviation</p> <p> Inclusive and personalised learning: Reading camps run by volunteers increased fraction of students who were able to read letters by ↑8 percentage points</p> <p> Early childhood intervention: Every dollar invested in high-quality early childhood education programs can yield between USD 6-17 in return (in terms of higher student achievement, higher enrolment, and more productive livelihoods)</p>
 Productive livelihood	<p> Vocational education: Scaling up apprenticeship systems had the potential to reduce difference between adult and youth unemployment rate by almost ↓6%</p>
 Cross-cutting	<p> School governance: In Indonesia, the average difference in examination scores between top and bottom performing local government is 10%</p>

SOURCE: Academic literature review

EQUITABLE ENROLMENT

Financial incentives, including cash transfers and scholarships, are among the measures that appear to produce the greatest impact on equitable enrolment across genders, disabilities, geographies, and socio-economic circumstances. In Morocco, for example, a labelled cash transfer programme in which funds were given without regard to school attendance resulted in a 76 percent fall in drop-out rates compared with schools not included in the programme.

Research has found that cultural and perception factors are also important for driving changes in enrolment. In India for example, funds provided to supply bicycles to girls to commute to secondary school increased their enrolment by 30 percent, and by 9 percent for those who lived more than 3km away.⁶⁵ In contrast, and perhaps surprisingly, the evidence is inconclusive

on whether low student-teacher ratios discourage dropping out of school in developing countries.⁶⁶

In addition, building new schools can spur enrolment significantly, largely because new schools tend to reduce the commuting distance faced by students. For example, a study of Indonesia's massive school construction programme in the 1970s found that each additional school per 1,000 school-age children increased the time in education per child by more than two months, on average.⁶⁷

However, beyond a certain point where schools are already present in local communities there is limited evidence to suggest additional infrastructure has further benefit. This is consistent with the evidence presented in the previous chapter suggesting that only about 2 percent of Indonesian students cite distance as a reason for dropping out of school.

⁶⁵ - Paul Glewwe and Karthik Muralidharan (2015), Improving School Education Outcomes in Developing Countries: Evidence, Knowledge Gaps, and Policy Implications, RISE working paper.

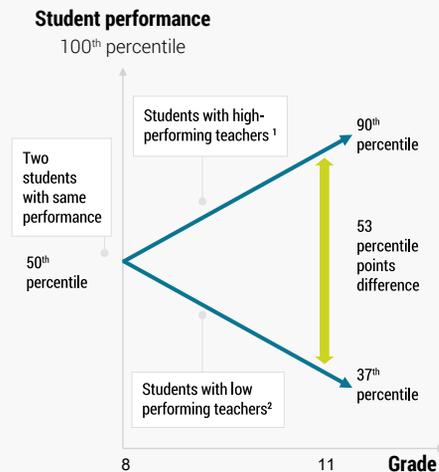
⁶⁶ - Ibid.

⁶⁷ - Esther Duflo (2001), Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment.

EXHIBIT 7 :: Teacher quality and school leadership are the strongest drivers of student achievement



Research indicates quality of teaching has a cumulative effect on student outcomes



1 - Among top 20% of teachers.

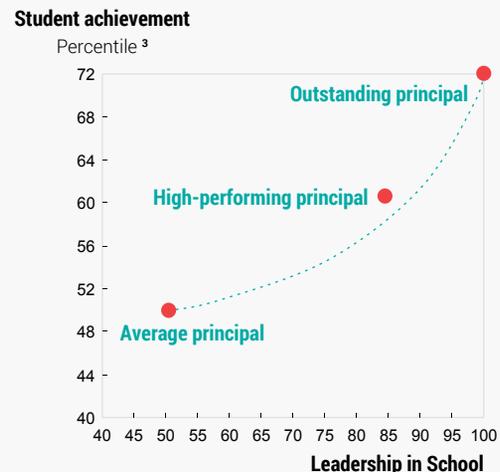
2 - Among bottom 20% of teachers.

3 - For leadership and student achievement, percentile implies the relative placement within the distribution

SOURCE: Sanders and Rivers, "Cumulative and residual effects on future student academic achievement", A 'meta-analysis' of 69 studies of school leadership conducted between 1978 and 2001, involving an estimated 14,000 teachers and 1.4 million students, Marzano, Robert J., Timothy Waters, and Brian A. McNulty, 2005



Research also indicates quality of leadership in school has a strong positive impact on student achievement



STUDENT ACHIEVEMENT

Academic research shows that teacher quality, school leadership, and early childhood interventions are the most important drivers for enhancing student achievement. Research from the United States has indicated that students of teachers ranked in the top 20th percentile display 50 percent higher performance in standardised tests (than students of teachers ranked in the bottom 20th percentile).⁶⁸ In Indonesia, a study shows that a 10-percentage-point higher teacher assessment score relates to a student's test score being 1.7 percentage points higher.⁶⁹

Research in the United Kingdom has also suggested that school leadership is the second-most important factor influencing student achievement after teacher quality.⁷⁰ A separate meta-analysis of 69 studies of school leadership conducted between 1978 and 2001 and covering about 14,000 teachers and 1.4 million students showed that a strong principal can get

students to perform 22 percent better than an average principal (Exhibit 7).

And finally, early childhood development programmes are widely recognised as delivering some of the highest returns to society in terms of building human capital, reducing inequality, and promoting future growth and prosperity. Early childhood interventions that focus on early education and pre-literacy development, parenting education, and nutrition have been demonstrated to promote school readiness, school achievement, and school completion in later years.

In Argentina, for instance, one year of pre-school education increases average test scores in maths and Spanish for third graders by 8 percent.⁷¹ The World Bank has also estimated that every US dollar invested in high-quality early childhood education programmes globally can yield returns of between US\$6 and US\$17, while every US dollar invested in proven maternal and child nutrition interventions can deliver returns of US\$16.⁷²

68 - Sanders and Rivers (2007), Cumulative and residual effects on future student academic achievement.

69 - World Bank (2015), A Video Study of Teaching Practices in TIMSS Eighth Grade Mathematics Classrooms, accessed at <http://documents.worldbank.org/curated/en/886911472471847117/pdf/AUS8688-REVISED-WP-P102259-PUBLIC-StudyMainReportDecember.pdf>.

70 - About 97 percent of schools in England rated good or excellent overall are led by management teams that are also related good or excellent overall.

71 - World Bank (2011), Investing in Young Children: An Early Childhood Development Guide for Policy Dialogue and Project Preparation.

72 - World Bank (June 2017), Indonesia Economic Quarterly.

BOX 1

Lessons on improving teacher quality

A review of experiences in Indonesia and abroad provides several lessons of what works and doesn't work to improve teacher quality:

1. Paying teachers more does not make them teach better. World Bank research in Indonesia associated with the certification programme shows that paying teachers more decreases their reliance on outside employment and decreases self-reported financial stress, but does not make teachers teach better.⁷³

However, international evidence does support the notion that teaching quality can improve considerably with the right levels of accountability and professional development support.⁷⁴

2. Subject matter is important, not necessarily college degrees. In Indonesia, teachers with bachelor's degrees are only moderately better at their jobs than those without a college degree, especially among primary school teachers. However, knowledge of subject matter appears to be important in driving improvements in learning outcomes.⁷⁵

3. The quality and distribution of teachers matter more than overall supply. In Indonesia, teacher training colleges produce 250,000 university trained teachers each year, while the system needs only 50,000 to 100,000 a year.⁷⁶ Despite the large inflow, many regions of Indonesia are not able to get access to high-quality teachers.

4. High-profile recruitment can enhance status, not necessarily quality. International elite teacher programmes such as Teach First, a UK initiative that channels top students into education careers, have helped change perceptions of a teaching career, but these efforts alone won't change the quality base of teaching because they touch just a small proportion of teachers. For example, Teach First has placed 10,000 teachers over 15 years. While



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the number is respectable, it is dwarfed by the estimated 1.3 million teachers and support staff in British schools.⁷⁷

While the impact on overall quality may be negligible, Teach First and similar Programmes deliver a multiplier effect by helping shift the status of the profession. For example, Teach First was ranked 2nd in The Times' annual list of Top 100 Graduate Employers in 2014-15.

5. Technology can boost teacher quality, if designed correctly. Technologies that support personalised learning, essentially mimicking a responsive tutor, and a greater focus on training teachers on how to incorporate technology into their lesson plans have significantly improved education outcomes at relatively low costs per student.

6. Training quality more important than quantity. High-quality training is essential, but too much training can lead to unnecessary absenteeism and disruption. In many systems, training is a major reason for teacher absenteeism.⁷⁸ In Indonesia, mentoring and peer learning have been particularly effective in supporting continuous professional development.⁷⁹

⁷³ - World Bank (2015). Teacher certification and beyond: An empirical evaluation of the teacher certification programme and education quality improvements in Indonesia.

⁷⁴ - McKinsey & Company (2007), How the world's best-performing schools come out on top.

⁷⁵ - Ibid.

⁷⁶ - Ibid.

⁷⁷ - According to BBC news (accessed at: <http://www.bbc.com/news/education-26973916>) and Teach First website (accessed at: <https://www.teachfirst.org.uk/what-we-do/developing-leaders-schools-0/training-and-supporting-new-teachers>).

⁷⁸ - ACDP (2014), Study on Teacher Absenteeism in Indonesia 2014, accessed at <https://www.adb.org/sites/default/files/publication/176315/ino-study-teacher-absenteeism-2014.pdf>.

⁷⁹ - World Bank (2014), Teacher Reform in Indonesia.

BOX 2

Lessons on improving school leadership



A review of experiences in Indonesia and abroad provides several lessons on what works and doesn't work to improve school leadership:

1. Principals as instructional leaders, rather than paper pushers. High performing school systems rethink the roles of principals and their key performance indicators. These systems focus on developing principals and instructional leaders and mentors, who play a positive role in improving the quality of teaching and learning at their schools, rather than myopic administrators.⁸⁰

2. A school-based approach has greatest effect for underperforming systems. In high performing school systems, targeting just the principals can improve overall school performance.⁸¹ In lower performing systems, however, entire schools should be brought into the reform effort. At a minimum, the principal, vice principals, and department heads must be included in any reform programme.

3. Decision points and influencers deserve attention. International evidence demonstrates using information to make stakeholders with decision-making power more accountable can improve school outcomes.⁸²

In Indonesia, parent committees at public school often have little influence on important issues, such as budgets or administration appointments, and may lack the necessary leverage to affect school leadership.⁸³ School boards, on the other hand, can wield considerable power at private schools, while school supervisors in public school could be valuable allies in influencing governance issues.

4. Principals hired from outside the school system need transition support. Many principals in Indonesia when appointed do not possess significant education experience and are in dire need of support to enable a successful transition. Interviews with school leaders revealed a large demand for principal training with an emphasis on financial management, accounting, legal issues, and policy, including grant availability and application processes.

5. Leaders need opportunities to share best practices. Interviews with philanthropists focusing on school leadership in Indonesia highlighted the urgent need for better collaboration and platforms to share best practices and experiences. While platforms are available for teachers to exchange insights and knowledge, little is offered to principals.

6. Data is limited, but analytic capabilities are more limited. Data on school outcomes in Indonesia is scarce, but interviews with leaders at education technology companies suggest there is also severe shortfall in capabilities among principals and school board members to analyse data effectively.

⁸⁰ - McKinsey & Company (2010), How the world's most improved school systems keep getting better.

⁸¹ - Ibid.

⁸² - RISE (2017), Information Provision Can Improve Learning Outcomes - When It Strengthens Accountability, accessed at <http://www.riseprogramme.org/content/information-provision-can-improve-learning-outcomes-when-it-strengthens-accountability>.

⁸³ - RAND (2012), Implementation of School Based Management in Indonesia.

BOX 3

Lessons on improving early childhood education and development



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A review of experiences in Indonesia and abroad provides several lessons on what works and doesn't work to improve early childhood education and development:

1. Start early. Nutritional interventions have the greatest effectiveness during a child's first 1,000 days, roughly from conception through two years of age.⁸⁴

2. Holistic approach is best. Crucial aspects surrounding early childhood development – parental awareness, finances, teacher quality, and nutrition – are inseparable and related. World Bank research in Indonesia has shown that interventions with a combined focus on education and health can have significantly greater effects on child development outcomes compared with interventions that address education and health separately.⁸⁵

3. Parents recognise importance, but not breadth. While parents in Indonesia generally understand the benefits delivered by early childhood education and development, most focus narrowly on numeracy and literacy and

neglect the need to build a broader range of cognitive skills.

4. Stunted development isn't simply about food quantity. Stunted development is a problem even in areas in which food is generally available. Parents must understand stunting is linked to a lack of nutritional meals for children, not simply a lack of food.

5. Philanthropists can influence public sector to invest. Civil society and philanthropists can play a critical role in building awareness of the importance of early childhood education and development and helping to mobilise action from the public sector, as seen in a UNESCO campaign advocating for universal kindergarten in the Philippines.

6. Teacher quality often overlooked in early education. Interviews with philanthropists involved in early childhood interventions showed that grants to local communities for early childhood education and development generally go toward infrastructure, rather than instructors, even though teacher quality can be important to success.

⁸⁴ - World Bank (2017), Indonesia Economic Quarterly.

⁸⁵ - Ibid.

PRODUCTIVE LIVELIHOOD

Vocational programmes developed in collaboration with the private sector have helped students achieve better jobs and better pay. For example, the Infrastructure Leasing and Financial Services (IL&FS) Skills Schools in India began placement discussions with industry partners before the formal programme started to assess demand and skill requirements and align the curriculum accordingly. As a result, 85 percent of the participants were hired once they completed the training.⁸⁶

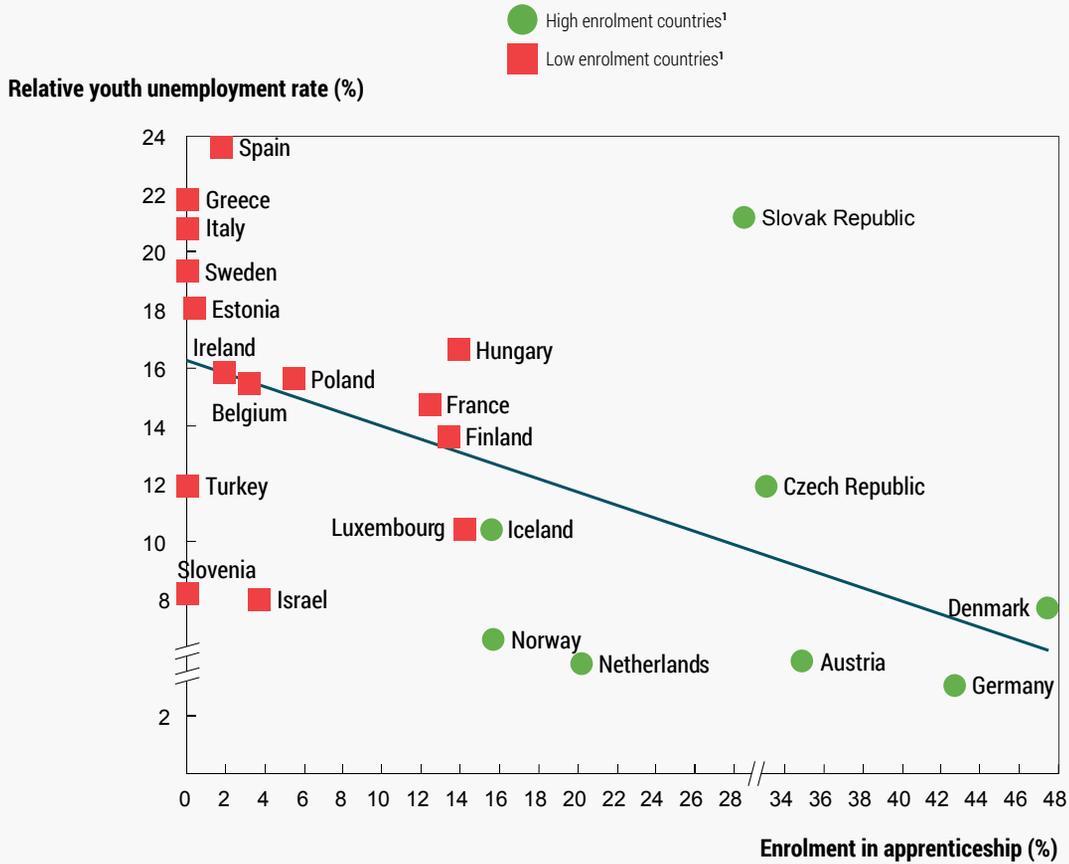
Ensuring a strong practical focus in the vocational curriculum is also important. An OECD study indicated that expanding apprenticeship systems in countries with low enrolment had the potential to reduce the youth unemployment rate by almost 6 percentage points (Exhibit 8).

In addition, short-term industry boot camps, industry-led curricula, and a heavy emphasis on practical skills development have proven to have significant impact on employment potential in many countries.



⁸⁶ - Details sourced from organisation website.

EXHIBIT 8 :: Apprenticeship has been shown to reduce the difference between youth and adult unemployment by almost 6 percentage points



Average youth unemployment rate in corresponding country group



Significant total reduction potential

For 15 OECD countries with low enrolment, apprenticeship programs have the potential to:

Reduce youth unemployment by **5.7%**

Put **0.9 million** young people back to work

¹ - Enrolment in apprenticeship programs: High enrollment > 15%, low enrollment < 15%

BOX 4

Lessons on improving vocational education



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A review of experiences in Indonesia and abroad provides several lessons on what works and doesn't work to improve vocational education.

1. Vocational education branding needs reboot.

Vocational studies are often misperceived as a second-best choice to other academic pathways. This bias can be corrected by creating elite vocational training programmes with a practical curriculum, apprenticeship opportunities, and guaranteed employment, as well as by making the achievements of vocational schools more visible.

2. Short boot camps effective when designed carefully.

Two- to three-month vocational boot camps, coupled with placement programmes, can deliver significant employment and skill improvement benefits when aligned with industry needs. To succeed, locations and sectors targeted with the training must be chosen carefully, and potential employers must be included when designing curriculum and criteria for applicants. Some notable examples include IL&FS in India and the Generation programme, initiated by McKinsey & Company, which operates across several countries (see Box 13 for further details on these programmes).

3. Solid curriculum on par with good teachers.

Training teachers won't deliver optimal student outcomes unless the curriculum is also revised to ensure it align with the hands-on skills needed by industry.

4. Technology, when used well, can improve student learning.

A range of technologies –

including video games – can allow vocational students to experience the workplace environment virtually. To be most effective, however, evidence has suggested that teachers must be trained to integrate these technologies into their lessons. Simply adding these technologies to existing instructional approaches is less effective.⁸⁷

5. Two-way street needed with industry.

Vocational teachers can be given the opportunity to work within an industry to improve the quality of their instruction. Vice versa, industry experts can visit campus as instructors, mentors, or speakers. Leading examples include South Korea and Japan which have established industry-teaching exchange programmes. To create a two-way street between school and industrial, practical issues such as how long a teacher can be absent from class for a placement, must be considered.

6. Recognised qualifications and standards boost success.

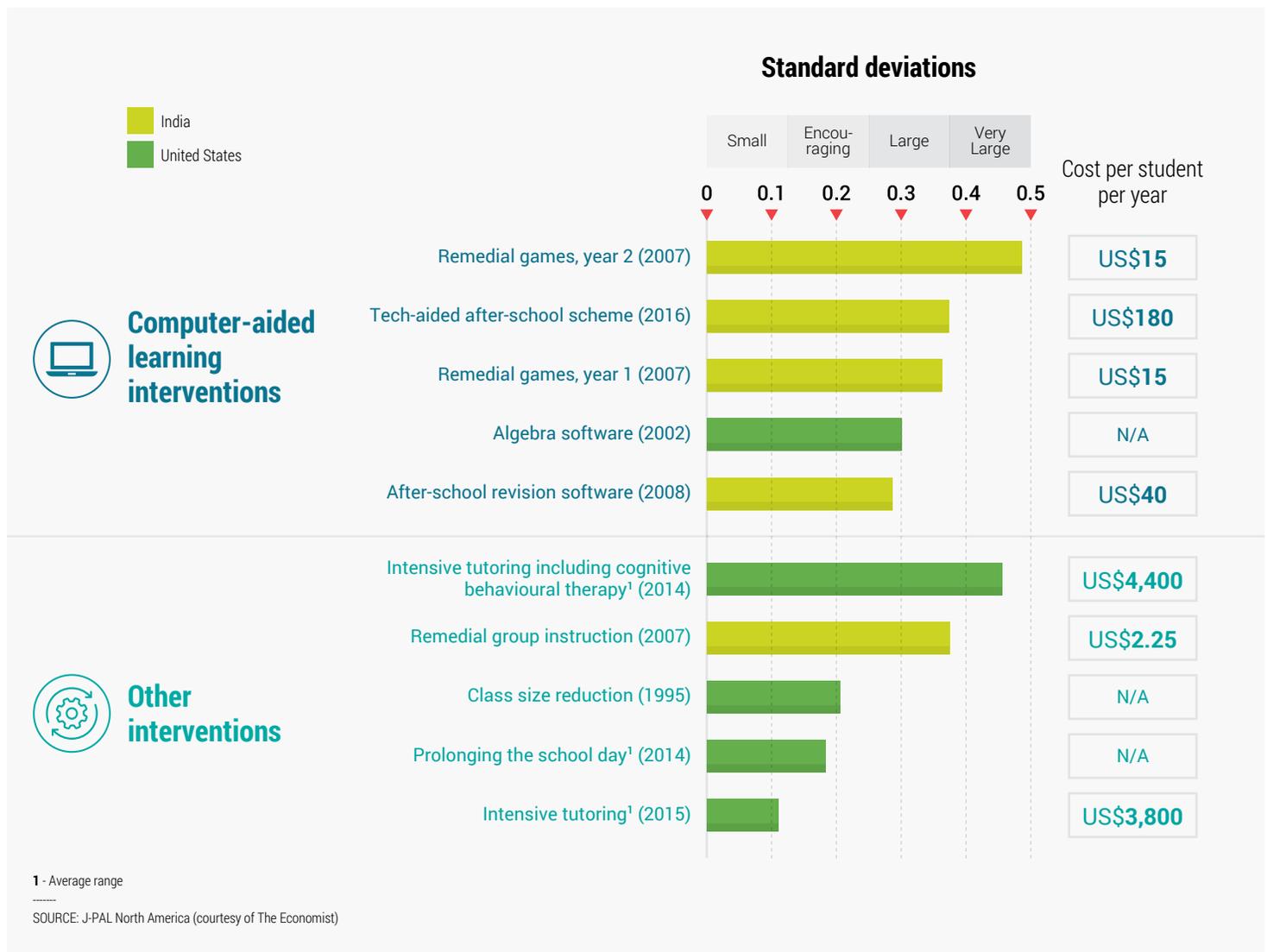
Education systems should develop standards, licensing criteria, and quality assurance programmes, endorsed by industry or independent assessments, to ensure and recognise the quality of vocational school training. For example, the New Zealand Qualifications Authority developed 18,000 standards corresponding to training modules with specific skills required for graduation. The standards were developed with sector-based training institutions representing the private sector.⁸⁸

7. Market information needed for students and parents.

Vocational students often don't have information crucial to making intelligent career choices, such as average wage expectations and skill requirements. A number of online platforms, including ones maintained by the UK National Service and the Columbia Labour Observatory, demonstrate how this information can be distributed over smart phones, tablets, and computers. To be effective in improving student outcomes, however, systems must work to channel this information to parents as well.

⁸⁷ - The Economist, "Technology is transforming what happens when a child goes to school", July 22 2017, accessed at: <https://www.economist.com/news/briefing/21725285-reformers-are-using-new-software-personalise-learning-technology-transforming-what-happens>.

⁸⁸ - McKinsey & Company (2013), Education to employment: Designing a system that works.

EXHIBIT 9 :: A number of tech-enabled personalised learning approaches have proven cost-effective in delivering impact**CROSS-CUTTING DRIVERS**

Some factors, in particular school models and technology, have a cross-cutting impact on education outcomes, providing benefits around equitable enrolment, student achievement, and productive livelihood.

Even recently, many researchers disputed the benefits of technology on the quality of a country's education system. Some studies on the linkage showed disappointing results. For example, providing students with laptops generally had limited impact on test scores in many countries.⁸⁹ And in 2015, the OECD found that most countries that spent heavily

in IT showed no significant improvement in the math, science, and reading skills of 15-year-olds.⁹⁰

However, the environment is changing. Technology has evolved, data costs have fallen, and educators are taking lessons from past disappointments to better incorporate technology into their lessons. Technologies that support personalised learning, for example by imitating the responsive role of a tutor, have significantly improved education outcomes at relatively low costs per student (Exhibit 9).

⁸⁹ - Bulman, George & Fairlie, Robert W. "Technology and Education: Computers, Software, and the Internet," IZA Discussion Papers 9432, Institute for the Study of Labor (IZA), 2015.

⁹⁰ - OECD (2015): Students, Computers and Learning: Making the Connection.