State of the Evidence

Description of the Evidence

Adding inputs into a classroom to support business-as-usual modes of schooling (textbooks, flipcharts, libraries, school-based grants, educational technology, or even additional teachers to reduce class size) without changing anything else (additional teacher support, improved pedagogy to go along with the materials, stronger governance, etc) have been shown to be consistently ineffective at increasing learning outcomes. In other words, adding inputs but changing nothing else about the classroom will likely not increase learning. Examples include textbooks in Kenya (Kremer et al. 2009) and Sierra Leone (Sabarwal et al. 2014), flipcharts in Kenya (Kremer et al. 2009), cash grants in Tanzania (Mbiti et al. 2019) and India (Muralidharan et al. 2013), and school libraries in India (Linden et al. 2013).

A subcategory of added inputs that follows the same lesson is adding technology to a classroom by way of providing hardware (laptops, tablets, etc.) without changing other aspects of the classroom’s structure, pedagogy, etc. Similar to other examples listed here in which the added input alone did not increase learning, this has not had a positive impact on learning (as seen in Peru (Beuermann et al. 2015) and Honduras (Bando et al. 2017), where laptops did not increase learning in either example.) See more examples in our Education Technology Evidence Review here.

Another type of input is adding additional teachers to reduce class size. While evidence from contexts such as the United States (Chetty et al. 2011) suggests that this can improve learning outcomes due to an improved student-teacher ratio and therefore more time spent on each student, evaluations from low- and middle-income countries have found that there may be other binding constraints to learning that are not addressed by the addition of more teachers. As such, adding teachers (and reducing class size as a result) did not lead to increased learning in Kenya (Duflo et al. 2015) or India (Banerjee et al 2007).

This evidence in no way suggests that physical materials, school funding, or teachers are not important or necessary conditions for learning. Rather, the evidence in this section suggests that simply adding more of these types of inputs without addressing other aspects of a classroom or school will likely not increase learning outcomes.
Notes on Context

In very under-resourced schools in which students don’t have access to materials or overcrowding is a serious problem, ensuring that all students have access to materials at a minimum is important. In fact, many evidence-based approaches provide inputs with associated changes in pedagogy or governance including Targeted Instruction, Structured Pedagogy, and Community Involvement.

Equity Considerations

While school-based resources are a necessary but not sufficient condition for learning, outcomes may vary based on student needs and the type of inputs provided. For example, providing textbooks to students in Kenyan classrooms did not improve learning for the average student, but did improve learning for the highest scoring students—those who could read the English-language textbooks (Kremer et al. 2009). This suggests that the textbooks were written at the appropriate level for high-scoring students to benefit from, but that lower-scoring students may need textbooks better suited to their level. When designing programs that combine school-based resources with changes in pedagogy or school governance, it will be important to keep in mind equity considerations for the specific pedagogical and governance changes, e.g. which students are reached and where, how much power do school committees have to enact change, etc.

Examples of lack of impact

- Textbooks and Test Scores in Kenya (Kremer et al. 2009)
- One Laptop per Child at Home: Short-Term Impacts from a Randomized Experiment in Peru (Beuermann et al. 2015)

Further Action Options

For approaches with limited evidence of effectiveness in the literature, more evidence generation is recommended to close evidence gaps. Based on the evidence for this category, potential next steps might include:

- Connecting with researchers to identify relevant open questions that would benefit from further research;
- Other activities to think through the research needs of this evidence in your context.

If you are interested in exploring these or other options, please contact the J-PAL Education team at JPAL_Education@povertyactionlab.org, to set up an initial exploratory meeting. The team will be happy to brainstorm potential next steps.

Operationalization Questions

- Below are open research questions on this topic. This list is not exhaustive but rather is illustrative of the types of questions that will help education actors make more evidence-based decisions to improve learning. Education actors interested in implementing programs in this category may want to consider including a randomized evaluation alongside implementation to (1) understand the impacts of the program, and (2) add to the global knowledge base.
  
- What are effective pedagogical approaches that can augment school-based resources to improve learning?
- What are effective school governance practices that can augment school-based resources to improve learning?
- Do certain school-based resources benefit certain groups of students more than others, e.g. textbooks in mother tongue?
- Are certain resources, e.g. education technology targeted at supporting teachers or school leaders, effective at improving student learning?