HELPING TEACHERS IDENTIFY STUDENT ERRORS

- Teachers’ ability to match their teaching to the actual learning levels of their students is the most effective way they can support student learning.

- Secondary teachers in six districts in Madhya Pradesh and Tamil Nadu were able to identify student errors about half the time; identifying student errors in secondary grade content is much more difficult for them.

- Teacher training – both pre-service and in-service – should focus more on helping teachers understand the range of learning levels of their students.

The National Achievement Survey in grade 10, conducted by National Council of Educational Research and Training in 2015, revealed that overall across all subjects large numbers of states performed below the expected average (NCERT, undated). For example, in mathematics almost none of the children got 75 percent or more of the questions correct and only 15 percent got more than half the questions right. Performance in modern Indian languages was better, with slightly more than two-thirds getting more than 50 percent right, but still only 5 percent were able to get 75 percent or more of questions correct.

At the school level, teachers are the most important policy instrument to improve quality. One important way in which teachers support student learning is through their ability to identify their students’ errors and to help students avoid such errors in the future.¹

The World Bank and Educational Initiatives conducted a study to understand teachers’ time on task in secondary school classrooms in 6 districts.

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¹ Across multiple reviews of the research literature, the interventions that are identified most consistently as producing large improvements in student learning are pedagogical interventions that match teaching to students’ learning levels. Though almost all of the studies conducted have been in primary education the extension of these results to secondary education is highly plausible given the even greater divergence in learning achievement of students in secondary classes. A precondition of these interventions being successful of course is that teachers are able to identify the learning levels of their students.
across 2 states of India - Madhya Pradesh and Tamil Nadu (World Bank, 2016). This study was a first attempt, in the Indian context, to better understand the quality of teaching and learning in secondary classrooms. This policy brief highlights findings about how teachers can support learning outcomes by identifying student errors; and makes recommendations for policy.

Most teachers in the sample had a Master’s degree and Bachelor of Education degree. In Madhya Pradesh, teachers were more likely to be male whereas in Tamil Nadu there were more female teachers in the sample.

In the study, Grade 10 language and mathematics teachers were asked to identify errors in students’ responses to questions in the subject in which they were teaching. Questions ranged in difficulty-level, and included both upper primary and secondary grade content.

On average, sampled teachers correctly identified 40 percent of student errors on the language test and 50 percent of student errors on the math test (Figure 1). There are no significant differences between average performance in Madhya Pradesh and Tamil Nadu. Only a handful of teachers were able to accurately identify all student errors on the mathematics test.

*Secondary teachers have most of the basic concepts; however, identifying student errors in secondary grade content is much more difficult*

Teachers were much more successful in identifying students’ errors on questions from the upper primary level than identifying errors in students’ responses to content from secondary grades. This was true for both language and mathematics (Figure 2). On average, teachers could correctly identify student mistakes on upper primary questions 54 percent of the time in language and about 60 percent of the time in mathematics. However, for questions based on content from grades 9 and 10, the percent of correct responses was substantially smaller –

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2 Teachers were not required to fill in the questionnaire, nor were they required to respond to all the questions if they chose to answer any. In fact, only about half the teachers gave an answer to all the questions on the test. However, analysis showed that teachers who completed the test did not do significantly better or worse than teachers who chose to answer only some questions. In this Brief, the responses of all the teachers are therefore included in the analysis.
less than 35 percent of the time in mathematics and less than 25 percent of the time in language.

There are substantial differences when looking at teachers in different districts. The teachers from Gwalior district in Madhya Pradesh were able to answer more questions correctly, in both language and mathematics, than teachers in all other districts (Table 1) and significantly better than teachers from the other districts in Madhya Pradesh. Results were much closer across districts in Tamil Nadu, but districts that did well in one subject did not necessarily do well in another.

This district variation is also observed when comparing teachers’ performance by type of question. Teachers in Gwalior district in Madhya Pradesh (Figure 3) do better than their counterparts in Balaghat and Jhabua on language questions from upper primary grades but perform similarly to teachers in Jhabua district of Madhya Pradesh when answering questions based on secondary school concepts. In mathematics (Figure 4), small variations...
in performance across districts are observed on questions measuring secondary school concepts while the teacher performance on basic mathematical concepts is quite similar across all six districts.

Policy Implications

Re-examining the content of teacher preparation and training programs to ensure content mastery and effective pedagogical practices among teachers will be crucial for teacher effectiveness and student learning. Teachers face considerable diversity of learning levels of their students and they need to be able to support each student from that student’s learning level. The differences across districts could be the result of district-level processes for teacher recruitment and pre- and in-service training, which argues for greater mobility of teachers, knowledge sharing and capacity building across districts.

Further reading


World Bank, 2016. ‘What is happening inside classrooms in Indian secondary schools? A Time on Task Study in Madhya Pradesh and Tamil Nadu’. New Delhi, India.
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