

Not all data is created equal – the choice of what data to inspect, the format in which it is examined, as well as the timing of its consideration – can all impact teachers’ abilities to apply data’s valuable lessons to classroom instruction.

THE Linking Study

The Linking Study, funded by the Spencer Foundation of Chicago, experimentally tested the hypothesis that timely and cyclical feedback to teachers about their instruction, examined in conjunction with the test performance of their students, can positively influence subsequent teaching and learning.

The Consortium for Policy Research in Education (CPRE) studied the effects of this approach to linking teaching and learning on 64 teachers of mathematics in ten elementary schools. We found that the linking process had substantial positive instructional impacts and learning effects. cpre.org/linking-study

About the Consortium for Policy Research in Education (CPRE)

Since 1985, the Consortium for Policy Research in Education (CPRE) has brought together renowned experts from major research universities to improve elementary and secondary education by bridging the gap between educational policy and student learning. CPRE researchers employ a range of rigorous and innovative research methods to investigate pressing problems in education today. Having earned an international reputation for quality research and evaluation, CPRE researchers have extensive experience conducting experimental studies, large-scale quasi-experimental research, qualitative studies, and multi-state policy research. CPRE’s member institutions are the University of Pennsylvania; Teachers College Columbia University; Harvard University; Stanford University; University of Michigan; University of Wisconsin-Madison; and Northwestern University.



THE Linking Study
MAKING CLASSROOM DATA WORK FOR TEACHERS



THE Linking Study

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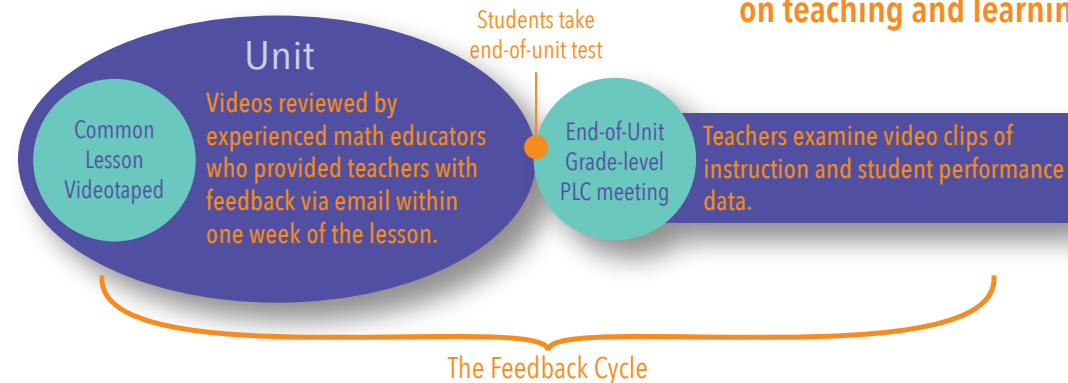
MAKING CLASSROOM DATA WORK FOR TEACHERS

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July 2013

THE Intervention

The Linking Intervention had significant and positive effects on teaching and learning.



34 out of 64 participating teachers were randomly assigned to the Intervention.

Treatment teachers received feedback about their mathematics teaching and their students' end-of-unit test performance, which they examined in regularly held PLC meetings (see 'THE CONTEXT FOR FEEDBACK' below).

Feedback about mathematics instruction came in two forms:

- First, a common lesson within a curricular unit was videotaped and each teacher received written, qualitative feedback about two dimensions of their lesson – *academic rigor* (rigor of enacted lesson) & *accountable talk* (student-teacher interactions) – within one week of the lesson.
- Second, during their end-of-unit PLC meetings, teachers watched clips of moments of *accountable talk* from their video-taped lessons and discussed strategies for gauging student understanding.

Feedback about student learning came from discussing students' problem-solving strategies on open-ended questions from their end-of-unit tests.

This Feedback Cycle was repeated during three curricular units over the course of the 2011-12 school year.

The Context for Feedback

Professional Learning Communities (PLCs) were a regular practice in the district prior to the Linking Study. PLCs are weekly, 45-minute meetings of grade-level teachers, led by either coaches or teachers. PLCs convene to discuss curriculum, examine student work, develop assessments, and more. During the Linking Study, teachers from the control group used their mathematics PLC meetings to examine student test performance using the district's structured protocol.

THE Data

Instructional Quality

Three lessons were videotaped of teachers in both the treatment and control groups. The videotaped lessons were then externally scored by trained raters on the quality of their *academic rigor* and *accountable talk*, using validated rubrics.

Data Use

Teachers were asked about the importance of data and their self-perceived proficiency to analyze data on surveys that were administered at the beginning and the end of the 2011-12 school year.

Student Performance

CPRE collected and analyzed the end-of-unit test scores for all 1,247 students of the 64 teachers who participated in the Linking Study in order to assess student performance trends.

THE Take-Aways

Use data to help teachers make connections between what they do –teaching– and what it produces –student learning. This is a more powerful approach than focusing on student test data alone.

Present data to teachers in a form that they naturally understand; don't make them learn research techniques in order to make sense of data.

Use innovative approaches, such as videotaping lessons, to facilitate more nuanced analysis of teaching techniques.

Focus data collection, feedback, & conversations on high-leverage instructional activities, such as the rigor of lessons; the teacher-student and student-student interactions; and student problem-solving strategies represented in open-ended test items.

Make data-informed conversations an ongoing part of teachers' experiences, rather than isolated events.

De-emphasize the *data* in data-based programs for teachers, and instead focus on the *practices* the programs seek to inform.

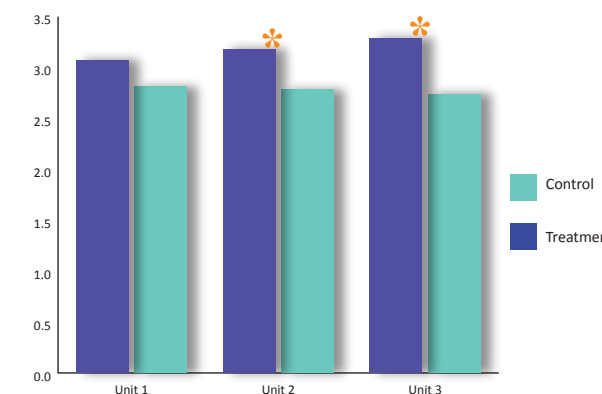
Encourage safe discussion environments by putting up a firewall between data used to provide feedback for improvement and data used for accountability purposes.

THE Results

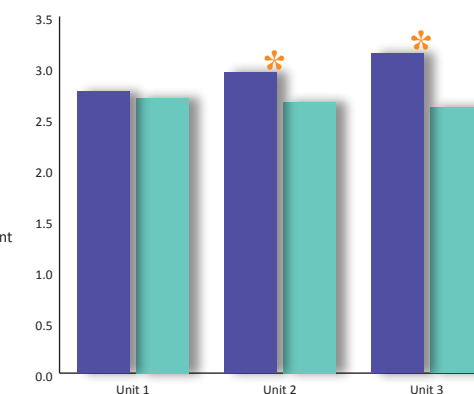
Impacts on Instruction

Instructional quality before the Intervention (as measured in Unit 1) was equivalent for both treatment and control teachers, signifying that the two groups demonstrated similar quality of instruction prior to the Linking Study. However, in Units 2 & 3, treatment teachers –who linked their teaching with student learning data– had significantly higher ratings of both *academic rigor* and *accountable talk*, indicating instructional improvements.

Academic Rigor

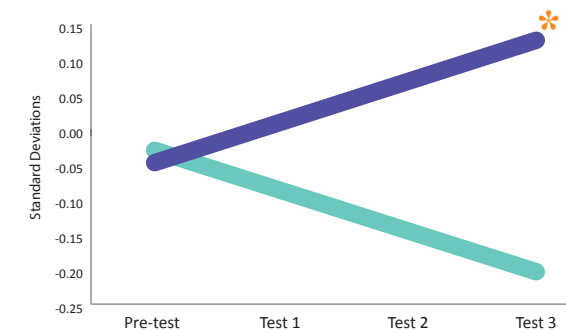


Accountable Talk



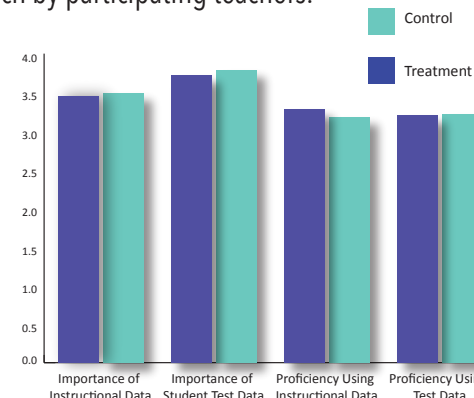
Impacts on Student Performance

Student learning was measured by students' performance on their end-of-unit tests. Because the tests were different across grades, we standardized the results using a common metric of standard deviation units. We found a statistically significant difference in the trend of performance between the treatment and control groups, indicating student learning gains caused by the Linking Intervention.



Impacts on Perceptions of Data-Use

The Linking Intervention did not change teachers' perceptions of the importance of instructional data or student data, nor did it change their perceived proficiency to use either teaching or test data. Thus, even though this intervention focused on teachers' use of data, it was neither framed nor perceived as such by participating teachers.



* Indicates statistical significance