

Looking at

Collaborative analysis of student learning can be the lifeblood of school improvement.

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Why do the majority of school improvement efforts fail to develop true learning communities? Because they don't adequately engage teachers in collaborative inquiry where it matters most: in the daily learning-teaching interactions between students and teachers. Our experiences studying teachers' development over the last 17 years have culminated in what we refer to as collaborative analysis of student learning (CASL), a particular form of learning community in which teachers discover the relationship between their instruction and student performance on classroom assessments and other samples of student work (Langer, Colton, & Goff, 2003). We define student work as any data or evidence collected by teachers that reveals information about student learning. Such evidence can come from teacher observations, student performances, writing samples, classroom assessments, and standardized tests. These data provide windows into students' understanding of key ideas and skills.

The idea of analyzing student work is not new. We suggest, however, that the approach has little potential to transform teaching or improve schools unless educators conceive it more broadly as *collaborative inquiry*, which places the student at the heart of the endeavor. Collaborative inquiry is most

powerful when teachers look at an individual learner's progress over time; when a theoretical framework guides the inquiry process; when teachers learn and follow collaborative norms; and when leadership and structures support the inquiry. As a result, teachers discover how specific students' understanding evolves and how they, as teachers, can promote this understanding. The approach also encourages school policies and practices that support learning at all levels (Langer et al., 2003).

What Does Collaborative Inquiry Look Like?

When they reviewed student scores on the local district reading assessments, one group of 1st grade teachers that we observed thought the solution to improving students' poor performance might be to adopt a neighboring district's guided reading program. The teachers decided to spend several months in CASL groups analyzing their students' reading to see whether the new program's approach would address their students' specific needs.

The teachers narrowed their area of study to oral reading fluency. They designed and administered a classroom assessment to determine the students' entry-level skills. Then the teachers recorded details about each student's performance to identify common strengths and challenges. One teacher,



Sue, found a cluster of students in her class who were generally strong on reading rate but who did not use problem-solving strategies when faced with unknown words. They either skipped the unknown words or substituted other words that didn't make sense. Sue selected a focus student, Elena, from this cluster. Developing Elena's word recognition problem-solving strategies became Sue's initial area of study. Sue's colleagues also each

Student Work



what combination and sequence. Two ideas central to this process are that teacher learning appears to proceed from the specific to the general and that professionals construct new understandings over a period of time.

From the Specific to the General

Collaborative inquiry is most instructive when teachers narrow their study to the complexities and uncertainties of one student's learning. This capitalizes on Shulman's (1987) idea of "case knowledge," the notion that individual students are the point around which teachers develop their theories of what works, with whom, and for what purpose. For example, a teacher may not store an understanding of "wait time" in a separate cognitive file for "strategies." Rather, he or she may store it with the case of the quiet student, Joe, who, when called on, demonstrated an impressive understanding of mathematical thinking after the teacher gave all students adequate time to prepare an answer to the problem.

You might reasonably ask whether studying only one student provides an excuse to ignore the others in the classroom. Because the focus students represent a cluster of students who exhibit similar learning challenges, teachers can use what they learn from studying one student with the larger group. Moreover, periodic classroom formative assessments provide information on the entire class's progress. Thus, the teachers' theories are tentative and modifiable when applied to larger groups of students.

This focus on the particulars of individual student learning is in direct opposition to more traditional school improvement approaches that use

selected a focus student who represented a common challenge found in the data, such as phrasing or reading rate.

The group analyzed a different focus student's work sample each week to learn why that student was (or was not) making progress in the identified area. Teachers experimented with various instructional practices and analyzed the resulting student work to determine next steps. A later assessment of the

students' reading fluency showed dramatic improvement. The teachers concluded that there was no need for a new reading series.

The Individual Learner Over Time

Learning to teach is not easy, partly because no one practice works for every student or for every learning outcome. The challenge is to figure out which strategies work for whom and in

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grade-level averages, subgroup averages, and item analyses to establish goals. Unfortunately, we all too often view such data as a mere baseline rather than as a source of information about students' current understanding that can inform instruction. When teams move directly from data analysis to workshops to "fix" the problems, they make three erroneous assumptions: that all low-performing students are struggling in the same way; that the same strategies will work for all students; and that all teachers need the same professional learning experiences.

The result is that we overgeneralize and engage in uniform instructional and professional development practices

reconstruct their current theories of what works (Putnam & Borko, 2000).

Another advantage of studying one student over time is that teachers often discover gaps in their own knowledge base when their teaching strategies fail. This leads them to identify their own professional development needs. At such moments, teachers need extra time to seek new information through professional reading, conferences, workshops, or observation of colleagues. For example, one high school science teacher we observed was studying how his students learned to write research papers. He realized that he needed to update his own teaching skills in that area and asked an

When Sue met with her CASL group to study Elena's development of oral reading fluency, she brought Elena's initial running record, which measured rate, word recognition, and phrasing. Sue picked this particular student because Elena seemed eager to learn and would try new ideas, although her progress was sometimes hindered by her anxiety when she felt the work was too difficult. Further, Elena's parents didn't model much reading at home because they worked long shifts at an auto factory. Sue's colleagues noticed Elena's limited use of problem solving when encountering new words. She would substitute words regardless of whether or not they made sense. Elena even missed the picture clue. The group noted one strength, however: When Elena read the word *always* as *away*, she corrected herself by saying *all* and then *always*.

Teachers discover how specific students' understanding evolves and how they can promote this understanding.

(El-Haj, 2003). This tendency explains why school improvement efforts often fail. In contrast, collaborative inquiry around individual student cases can and does transform teacher and student learning. To have maximum power, this inquiry needs to take place over time.

Studying Students Over Time

Analyzing a single piece of student work provides only a snapshot of what a student can do at a given moment. In contrast, looking at the same student's work over time enables teachers to study how students develop complex understandings through an intricate tapestry of scaffolded experiences. We would all agree that it is easier to teach isolated science definitions than it is to teach the scientific thinking outlined in many benchmarks. Collaborative inquiry enables teachers to study how students gradually learn these complex processes and to understand the teacher's role in promoting that learning. Because such deep learning rarely results from a single experience, teachers need time to conduct longitudinal studies in which they test and

English teacher in his CASL study group to share and model ideas for teaching writing.

The Inquiry Cycle

To portray and study teacher learning, we created the Framework for Teachers' Reflective Inquiry (Colton & Sparks-Langer, 1993). The framework combines research and theory about professional knowledge, learning, and dispositions within a collaborative culture. A key part of the framework is the inquiry cycle (Kolb, 1984), which consists of four stages: observing, analyzing/interpreting, planning, and acting. This cycle describes how teachers build much of their professional knowledge base.

Observing

Teachers often observe a learning challenge and immediately try to figure out what to do about it. At this stage, however, they need to refrain from jumping to conclusions and take the time to see all the relevant aspects of what is taking place (Carini, 1979; El-Haj, 2003).

Analyzing/Interpreting

Once teachers have observed such a phenomenon, they take time to engage in flexible thinking (Costa & Garmston, 2002) by entertaining several possible explanations for the events. Sue's colleagues offered multiple interpretations of Elena's performance. One teacher wondered whether the reading level was too difficult. Another thought Elena might have trouble dividing her attention between rate and accuracy. Still another proposed that Elena might never have been explicitly taught problem-solving strategies, such as using picture clues. Her successful self-correction was possibly due to the fact that she could see that the difficult word combined two words that she already knew (*always* = *all* plus *ways*).

Planning

On the basis of their analyses, the teachers devise a plan of action. For example, Sue decided to do another running record with a lower-level reading book to determine whether the books she selected for Elena were at the appropriate reading level. When teachers have a fairly good understanding of the student's learning needs,

they can consider multiple interventions and evaluate each one's potential to yield the desired results.

Sue's colleagues helped her plan how to proceed by suggesting and discussing several problem-solving strategies that Elena could use to improve her word recognition. Sue selected the strategies that she believed would best fit Elena's needs and discussed with her group how to model and teach them. After a month of having Elena practice the problem-solving strategies, Sue would

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to comprehend the author's meaning during oral reading. Sue chose strategies from the article to try with Elena, such as using texts that lent themselves to dramatic performance (plays and fairy tales, for example). When Sue brought Elena's next work sample to her CASL group, the teachers noted better phrasing and improved comprehension, with less anxiety on Elena's part. The group continued to use the inquiry cycle to improve other errors in Elena's reading.

Learning to Collaborate

Collaborative analysis of student learning invites multiple interpretations of the same event. In Elena's case, we saw teachers share multiple explanations for her reading problems. Collaborative inquiry can also prompt teachers to reconsider limiting assumptions. For example, some teachers in Sue's group assumed that Elena's progress would be hindered by her parents' limited reading at home. As they observed how Sue's modeling helped Elena improve, however, they realized that teachers can influence learning regardless of the home situation.

Collaboration also enriches and transforms the teacher's knowledge base. When Sue discovered that reading fluency was closely related to phrasing and comprehension, she shared her insight with the other teachers. Sue's group also learned new reading strategies from the article that the reading specialist brought in. One result of this professional inquiry is "collective efficacy," a sense that we can do it together—an element identified in a pertinent study as an important variable in school reform (Goddard, How, & Hoy, 2000).

Collaboration does not happen automatically. Many schools have not developed a culture in which teachers and leaders can safely take risks—by sharing less successful students' work, for example—and engage in dialogue about assumptions, beliefs, and practices. Schools need to develop effective norms for the groups, and these groups need to learn how to paraphrase, probe,



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reassess Elena's progress and bring the results back to the group.

Acting

Next, the teacher puts the plan into action. Sue worked with Elena on the suggested strategies and brought Elena's most recent running record to the group. It showed marked improvement on Elena's use of problem-solving strategies. Sue attributed this to the modeling and guided practice. These strategies seemed to ease Elena's anxiety when tackling new words. Sue also became more intentional about picking texts at the appropriate reading level.

What happened next illustrates the power of this process to generate

powerful teacher learning. Initially, the teachers assumed that improving reading rate and accuracy would also improve phrasing and comprehension. But this was not evident in Elena's recent work sample, nor was it true for the other 1st grade students whom the group had been studying. The teachers began to question the relationship between fluency—especially phrasing—and comprehension.

They invited the district reading specialist in for help. She had the teachers read an article that addressed their questions and provided ideas for teaching phrasing. One "aha" moment for Sue was understanding that students need to know how text is put together

and question as they engage in professional discussions (Costa & Garmston, 2002). These skills help teachers and organizations move beyond a "culture of polite conversation" to deep analysis of teaching and learning (Little, Gearhart, Curry, & Kafka, 2003).

Promoting Collaborative Inquiry

Transforming school cultures for collaborative inquiry is a slow process that requires a clear vision and a passion for this kind of change. We suggest that school administrators and teacher leaders engage in their own collaborative inquiry to develop a shared vision for their organization. Without this vision, it becomes more difficult to explain, model, and promote collaborative inquiry.

Individual students are the point around which teachers develop their theories of what works, with whom, and for what purpose.

Administrators who hold this vision often ask us, "How can I introduce collaborative inquiry to my staff?" A group session should begin with establishing a preliminary set of norms, such as starting and ending on time, building on others' ideas, and withholding judgment. Following an explanation of the inquiry cycle, teachers use the cycle to discuss written or videotaped cases of classroom dilemmas. When asked to reflect on this experience, teachers typically mention that in the hectic pace of their work, they rarely slow down enough to analyze why things happen, and they would like to do more of this.

Another way to introduce the inquiry cycle is by asking teachers to observe patterns in test data. They can then analyze why these patterns—low scores on science writing, for example—might exist. To test their hunches, teachers can design and administer an assessment similar to the one on the test and

then analyze their students' patterns of performance.

For example, some 5th grade teachers assessed their students' writing on science concepts. Even though many students earned the same score—a 2—on the rubric, the teachers observed that one cluster of students could express the ideas orally but could not write them down, whereas another cluster could write down their thoughts but could not organize them orally. As the teachers analyzed various reasons for these patterns, they discovered that they might need to implement different strategies for these two clusters of students.

If a school has already established its professional learning agenda for the year, teachers might engage in the inquiry cycle with student work samples to determine whether the

strategies or programs are having the desired effect on student learning.

When teachers are empowered by their experience with inquiry, they are more willing to influence school policies and work toward school improvement. For example, an entire staff met in study groups during a certain time block for a year while substitute teachers covered their classes. On the basis of the teachers' positive reports, the principal rearranged the following year's schedule to allow grade-level teams to meet during the day. This structural shift reflected the school's commitment to the vision of collaborative inquiry.

We believe that every teacher's passion is to see his or her students succeed. Yet too many teachers attribute student failure to external forces—a mind-set that is due, in part, to cultures of isolation and failed professional development. Schools that engage

in collaborative inquiry develop a sense of collective efficacy that helps educators reconnect with their original point of passion: ensuring student success. **EL**

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