



## Researchers pinpoint factors that influence teachers' responses to data

Coaches and professional learning communities influence how teachers respond to data and how they use data to change delivery of instruction — that is, reorganizing how students acquire knowledge and skills. The influence emerges from the relationship between vertical and horizontal expertise and coaches' and professional learning communities' facilitation of teachers' change in instructional delivery. The study also concludes that dialogue mediates changes in practice and that supportive school and district contexts increases the possibility for change.

### Study description

Coaches and professional learning communities can influence how teachers respond to student learning data. More than two-thirds of the instances in teacher data response that resulted in changing delivery of instruction involved a coach or professional learning community, compared to 51% of those responses that resulted in no change in delivery of instruction. The overall number of teachers' responses to data resulting in

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### At a glance

Coaches and professional learning communities within supportive contexts influence how teachers respond to and use data to change delivery of instruction.

### THE STUDY

**Marsh, J., Bertrand, M., & Huguet, A. (2015).** Using data to alter instructional practice: The mediating role of coaches and professional learning communities. *Teachers College Record*, 117(4), 1-40.

change in delivery (57) in the schools studied is far less than those instances generating no change in instructional delivery (121).

Researchers draw on the theoretical concepts of vertical and horizontal expertise to explain how coaches and professional learning communities mediate change. Vertical expertise is an individual's knowledge and skill and typically explains novice versus accomplished practice. For coaches and professional learning community leaders, this type of expertise includes skills such as relationship building, content-specific knowledge and skills, data analysis, and connecting with adult learners. For teachers, to work effectively with coaches and in professional learning communities, it includes relationship, inquiry, collaboration, and data use skills.

Horizontal expertise, on the other hand, is "knowledge that is cocreated through interactions and movements across contexts" (p. 4). This type of expertise emerges when coaches,

professional learning community leaders, and teachers step out of their individual roles and perspectives and cross boundaries to generate new or hybrid ideas. When both forms of expertise are strong, responses to data that generate changes in instruction are more likely to occur.

Researchers also note that dialogue focusing on both data and instruction is a stronger mediator of changes in instructional practice than dialogue about data alone. In addition, school and district context conditions are key contributors to teachers' responses to data that result in change in instructional delivery.

### Questions

The exploratory research study focused on two questions:

- How does working with a coach or professional learning community mediate teachers' responses to data?
- What factors influence the activities and effects of coaches and professional learning communities?

## WHAT THIS MEANS FOR PRACTITIONERS

This exploratory small-scale study provides insights on several standards of effective professional learning. It illuminates the importance of Learning Forward's Standards for Professional Learning: Learning Communities, Leadership, Resources, Data, Learning Designs, Implementation, and Outcomes.

In schools where response to data resulted in change in instructional delivery, there were structures for and commitment to continuous improvement. District leaders and principals reinforced the vision for data use for classroom instruction and supported learning leaders such as professional learning community leaders and coaches. Resources such as time, personnel, and data management systems supported teachers' responses to data.

Developing vertical and horizontal capacity for data analysis among teachers, coaches, and professional learning community leaders facilitated teachers' use of data for instruction. Selecting and applying learning designs such as dialogue, coaching, and

professional learning communities developed teachers', coaches', and professional learning community leaders' vertical and horizontal expertise.

Coaches and professional learning communities provided personalized implementation support for transferring analysis and interpretation of data to change in instruction. Maintaining a focus on the expected performance regarding data and learning outcomes for students strengthens the coherence and goal orientation.

Additionally, this research study provides insights on effective use of coaching and professional learning communities; the role of professional learning community leaders, principals, and district in regard to data; and the necessary school and district contexts that facilitate teachers' responses to data that results in changes in instructional delivery. The leap to results for students is yet unsupported. However, creating changes in instructional delivery is an essential step in generating results for students.

### Methodology

The research team conducted an exploratory comparative case study of six middle schools in two districts that employed coaching and professional learning communities as their primary or secondary intervention for improvement. Conditions identified in previous research as supportive of data use informed the selection of schools. These conditions included the presence of data coaches, literacy coaches, professional learning communities, multiple forms of accessible data, and data management systems. Each school had failed to meet state accountability targets for more than five years, served a majority (95% or greater) of nonwhite students, and had selected coaching and professional learning communities as their primary or secondary intervention for improvement.

Researchers, using multiple approaches, collected data in the 2011-12 school year. In each school, they interviewed the coach or professional learning community lead teacher, two to three case study teachers who

taught language arts, and school administrators. Researchers interviewed district administrators, held focus groups with approximately 24 non-case study teachers in each school who mostly taught subject other than language arts, and surveyed monthly case study teachers. They visited each school three times during the year to observe district and school meetings.

### Analysis

Through a yearlong process of continuous and iterative data analysis, researchers recorded, transcribed, and coded qualitative data for three areas, application of the data cycle, capacity building practices, and contextual conditions at several levels, including individual, school, and district. In addition, researchers applied descriptive analyses to the survey responses and compared them across schools.

Subsequent reanalysis of passages coded as response to data yielded 343 instances that were further narrowed to responses that were associated with reported action taken in response

to data and to instruction. This latter analysis yielded 294 instances distributed fairly evenly across the six schools in which teachers responded to data. The 294 instances were further analyzed for change in instructional delivery that was defined as the adoption of a single strategy used once or a long-term change in instructional practice. Of the 294 instances, only a small portion, 57, resulted in actual change in delivery of instruction.

These practices were distinguished from responses teachers made to the data that involved no change in instruction. In the latter responses, teachers retaught the content in the same way, retested students, sent students for assistance out of class, or asked students to reflect on their own data. Researchers then analyzed the instances in which teachers reported using data to change delivery to determine similarities.

### Results

Several factors contributed to teachers being able to use data to

change instruction. One factor that positively influenced change in instruction was the presence and strength of coaches' vertical expertise in areas related to working with adults, building trusting relationships, using data, and content knowledge and pedagogy. Another factor is teachers' horizontal expertise.

Researchers conclude that professional learning communities are likely to impede the potential for long-term change when members lack both vertical and horizontal expertise in areas such as collaboration and interpersonal skills and data analysis and focus on sharing discrete strategies rather than using their shared experience to create new understanding and hybrid ideas. Teachers' responses to data reinforced existing rather than altered instructional delivery when professional learning communities were clearinghouses for existing practice.

When a coach or professional learning community leader with vertical expertise engaged with teachers in professional learning communities, their horizontal expertise was enhanced, thus leading to more change in instructional delivery. Using contrasting individual case studies of coaches, teachers, and professional learning communities, researchers demonstrate the differences in how vertical and horizontal expertise are applied.

Researchers also conclude that dialogue mediates teachers' responses to data. There were no instances of dialogue about data alone associated with change in instruction. In the schools with data coaches, teachers' responses to data did not lead to change in delivery, but rather other changes, such as reteaching in the same way or retesting students. When dialogue among teachers and coaches included simultaneously a focus on data and an equivalent focus on instruction, change in delivery was more likely. Researchers surmise that dialogue about data disconnected from instruction may fail to offer teachers sufficient guidance for substantive change in instruction.

School and district context factors influenced teachers' responses to data. In schools, these factors included the principal's role in establishing and communicating a vision about data use for instructional purposes, allocating of time for teacher collaboration, and protecting the role of coaches from noninstructional tasks.

At the district level, factors included a commitment to fund and support coaches, an investment in data management systems, and policies regarding data use. When these factors were present and supportive of teachers' use of data for instructional decision making, they facilitated rather than constrained the potential for teacher

change in instructional delivery as a response to data.

### Limitations

This small-scale exploratory study establishes a foundation for more extensive research and deeper analysis of the role of coaches and professional learning communities in mediating teachers' responses to data about student learning. Researchers note a number of limitations to their study.

The study focuses on six historically low-performing schools that are more resistant to change. Understanding how to implement change in schools with these attributes is essential to promote change in similar ones. The selection of schools, however does not present a full representation of all contexts in which teachers use data.

The use of self-report data with limited observational data is another limitation of this study. Case study teachers were willing participants in coaching and professional learning communities. Their willingness does not shed light on the more reluctant teachers who avoid engaging in coaching or professional learning communities.

Another significant limitation is that the study did not have longitudinal data about the duration of changes in instructional delivery or the effects of those data on students. ■



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