Tools index for Chapter 3		
Tool	**Title**	**Purpose**
3.1	**Read your way to success**	Use this resource to gain direction for the effective use of articles for discussion.
3.2	**Middle school math coach brochure of services**	Use this brochure as an example of one way to communicate the services provided by a coach at the school level.
3.3	**Description of staff collaboration center for student achievement**	Use this description to examine a structure for staff collaboration as a model of how to increase teacher-to-teacher collaboration.
3.4	**Sample staff newsletters on instructional practices**	Use this model newsletter to serve as an example of how coaches communicate current news about instructional practice across their school.
3.5	**Success analysis protocol**	Use this protocol to identify and share actions that individuals, teams, or schools take that have a positive impact. After identifying those actions, analyze what made them successful and apply that learning to next actions.

Conclusion

Teachers appreciate the resources that coaches provide. And coaches who are experienced teachers are adept at locating instructional resources and modeling appropriate use. In this role, coaches save teachers time and effort. Yet, in many cases, among the instructional materials, professional journals and books, websites, and other assets a coach might share, none is more valuable to a teacher than the resource of time allocated for coaching.

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Chapter 4

Data coach

Supports teachers in analyzing, interpreting, and using a variety of data to improve decision making, performance, and results at the classroom and school level.

Coaches assist teachers in using a variety of data from multiple sources to focus instructional decision making. Data may include student work samples, classroom anecdotes, formal and informal assessments, standardized tests, and teacher judgment. Data-informed conversations among teachers and coaches or between a coach and a teacher guide them in aligning their efforts toward meeting explicit district and school goals for student achievement, teacher professional growth, and school improvement. In addition, data provide the evidence for teachers to assess student achievement and their own professional growth.

Data coaches help teachers make best use of data

Data coaches help teachers identify, analyze, and interpret data. Most importantly, they help teachers to use data to make informed decisions about their students and their students' learning and act on their decisions.

Using data

During the last decade, schools and school systems have invested in creating and deploying data systems to increase access to and use of a wide variety of data, especially to monitor and assess student learning. Yet access is only one portion of the data process. To make the best use of data, coaches help teachers accomplish five aspects of effective data use: 1) determine which data to use for what types of decisions; 2) access multiple forms of data and ensure the most appropriate data for a given purpose; 3) analyze and interpret the data; 4) use the analyzed and interpreted data in decision making and act on their decisions; and 5) collect data that are not available when needed. In each of these steps, a coach might serve a teacher or teacher team by teaching or modeling data access or

> "Student work is at the heart of student-centered coaching. Without student work coaching quickly slips toward being more about teaching and less about student learning."
>
> *Diane Sweeney*
> *Student-Centered Coaching: A Guide for K–8 Coaches and Principals, 2010, p.12*

collection; analysis, interpretation, and use; or facilitating the data processes with teachers. Occasionally, when a teacher is new to using data or unfamiliar with the school's or school system's data system, a coach might take a more prominent role in accessing and presenting analyzed data to a teacher for collaborative interpretation.

Understanding types and sources of data

The Data standard of the Standards for Professional Learning states:

> **Data:** Professional learning that increases educator effectiveness and results for all students uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning (Learning Forward, 2011, p. 23).

As a form of professional learning, coaching, too, emphasizes using a variety of sources and types of data. Coaches help teachers recognize different data types and sources and use the most appropriate ones to make their decisions.

The most common types of data available to teachers and coaches are student learning data from formative, summative, or diagnostic assessments; student work products; or performances, observations, or conferences with students. When a teacher wants to understand student learning, he uses different types of data to create a full picture of student learning rather than relying on a single type of data that might skew the teacher's understanding or conclusion about a student. How a student performs on a benchmark assessment tied directly to the curriculum taught in the classroom may differ from how a student performs on a state assessment. Because each type of data emerges from a specific assessment situation, combining multiple types allows the teacher to be more accurate in his conclusions about student learning. These examples of data are from a single source, the students.

In addition to the various types of data, coaches support teachers in seeking and using other sources of data. Other sources might include anecdotal information from teachers, parents, or resource teachers who interact with the student. Coaches assist teachers in knowing when and how to seek and integrate other sources of data in their decision-making process. For example, a conversation with a parent about student behavior or available support at home can help a teacher know how to align his teaching in ways that are more consistent and supportive of what happens at home.

Data coaches support teachers in several ways

To help teachers use data most effectively, coaches provide three levels of support. First, in one-on-one, team, or whole school professional learning, they may teach how to access various

types of data beyond test scores and analyze, interpret, and use data. Second, they may engage teachers in individual data discussions that focus on the five fundamental steps of data use. In these discussions, they may use specific protocols such as those included in the tools for this chapter to guide those data discussions (see Tools 4.1 and 4.2). Third, coaches may also facilitate team or schoolwide data meetings in which teachers are working collaboratively to engage in analyzing and interpreting data to establish schoolwide student achievement or collaborative learning team goals and create plans for addressing those goals. The goal for a data coach is to develop teachers' capacities to use data to inform decision making, to act on their decisions, and to use data as evidence in their work. Bruce Wellman and Laura Lipton (2017) advocate the significance of data dialogues in the work of teachers. They assert that collaborative inquiry is essential to the use of data and that solid process skills facilitate building a shared understanding of data and its effective use to improve teaching and student learning.

> "The information on professional development and data conversations was timely since that is the focus of what I am doing right now. As my school is operating under a School Improvement Grant, we have been focused on data — immersed in data, really. However, our staff remain confused about how best to use the data. Since the Coaches' Academy I was able to address this issue with our School Leadership Team, and we scheduled a training for all staff with a data expert. I believe this experience has opened a number of doors to classrooms that I did not have before."
>
> *Annette Muñoz-Beyer*
> *Teacher Leader*
> *United Tribes Technical College*
> *Theodore Jamerson Elementary*
> *Bismarck, North Dakota*

Data analysis, interpretation, and use processes

Data coaches help individuals and teams of teachers use data in a variety of ways. This means coaches assist teachers to analyze, interpret, and use data to make decisions. Sometimes coaches support building administrators or the school's leadership team in using data to assess progress on schoolwide goals as well. Coaches may be asked to display data for data meetings or provide evidence to central office or community members.

Data analysis and interpretation

Occasionally data coaches, particularly if they have expertise in assessing, monitoring, or evaluating programs, may be asked to help find or develop data collection tools or instruments for collecting data when none is readily available. This might happen, for example, to monitor progress toward the goals of the schoolwide professional learning plan focused on strengthening consistency and accuracy in instructional practice related to a program of instruction. Student achievement data will ultimately determine whether the improved instruction is contributing to student success. And given that effective implementation is essential for positive student impact, the school leadership team might also want

to collect interim data that assess teachers' implementation of new practices. In this case, the coach might work with the leadership team or a group of teachers to generate look-fors that teacher teams will use during learning walks throughout the year. Or, a coach might help an individual teacher specify types of data to collect in her classroom and assist her in collecting them to show evidence of progress on her professional growth goal.

Data conversations among teachers

Engaging with teachers to identify data they want to examine, as well as various ways of collecting them, helps coaches increase teachers' openness to considering multiple sources and types of data. It may also strengthen their buy-in to conducting data conversations. In their work as data coaches, coaches use tools such as process maps or protocols to help teachers make sense of data (see Tool 4.3). To develop teacher capacity to use data in decision making, coaches encourage teachers to use more than one source or type of data and often point to additional sources or types that can inform data conversations. Test data are useful, yet the closer the data are to the instructional setting, such as data that emerge from examining student work, the easier it is for teachers to interpret those data and make immediate use of them. Coaches engage teachers in discussions on the type or source of each data set and what information each data set can and cannot provide. During data conversations, coaches use probing questions, protocols, or other explicit processes to facilitate teachers' making observations based on the data as well as mining the observations for patterns, trends, outliers, inferences, and conclusions.

Conversations about root causes the school can address

When data are analyzed, coaches help teachers identify root causes, those factors contributing to the current state. Together, coaches and teachers generate hypotheses about how the root causes affect student learning. They may use additional data to determine which of the multiple potential causes is a major contributor and whether it is something within the teachers' or school's circle of control. For example, factors such as poverty are often identified as correlates to low achievement, yet teachers want to focus on root causes related to instructional quality and learning opportunity. When the root cause(s) are identified, both the coach and teachers work together to create an instructional plan to address the root cause. Although schools cannot directly control poverty, school staff can connect families with district or community resources. In classrooms, teachers can integrate instructional approaches, such as building background knowledge and academic vocabulary, to support student learning. Teachers implement the plan and assess student achievement on an ongoing basis to determine if the instructional plan is working and what adjustments they can make to improve it. When coaches focus conversations on data about student learning in a positive and productive way, the conversation empowers teachers rather than threatens them. Assuming positive intentions for all teachers in the data conversation creates a blame-free environment for examining data. Creating opportunities to identify areas of need is the first step in planning how to address those needs.

Coaches promote using data to determine next steps for addressing the findings by asking probing questions about what led to the current situation and what might change it.

They may also propose interventions such as professional learning needed to adapt current instructional practice to interrupt the current cycle of results.

Data coaches need certain knowledge, skills, and practices

To lead data conversations, coaches establish a risk-free and blame-free environment that allows teachers to feel safe. An essential part of creating this environment is building agreements with teachers for use in data discussions.

In addition, coaches require a thorough understanding of various types and sources of available data, an understanding of what each data source assesses, and what conclusions can be validly drawn from any data set. Most often coaches use student achievement data in their work, yet it is helpful for them to know about other types of data such as interactions with students; perception data (e.g. opinion surveys); process or system data (e.g. school factors related to attendance, behavior issues, teacher absenteeism, curriculum mapping); and demographic and community-based data (e.g. head-of-household, employment, education attainment). Coaches often assume the responsibility for ensuring that teachers and school staff consider more than one source of data. Coaches also might be asked to help identify data instruments or methodology, so they likely will find it useful to have a familiarity with several different types of data collection tools, what they are best used for, and who can assist them in this work if they need additional support.

A crucial part of any data conversation is moving toward action to alter the results, based on the data. To determine what actions to take, coaches help teachers identify the potential causes of problems they identify in the data, focus on the areas within their control especially instruction, formative assessment, unit and lesson planning, instructional resources, and professional learning. Susan Neuman (2016) proposes that the work with data shifts teaching:

> Gone is the examination of vast amounts of test score data. Rather, teacher teams use student work as data in action, asking themselves, "What are our key teaching points for the next week?" and then coming back the following week and asking, "Were we successful?" and if so, "How do we build on students' learning?" Together, they talk about ways to support students who are struggling. These teachers describe what they do as *data-informed* teaching, recognizing that the purpose of monitoring student progress is to fine-tune instructional moves to enable all students to be successful. (p. 28)

The Fishbone Diagram, a quality management tool, engages teams in a process to define possible causes of identified problems (see Tool 4.4). Knowing the most likely cause of gaps in student achievement focuses teachers on what to do to best address the problem. Coaches need the know-how to assist teachers in finding information about which actions to take to address learning issues that are identified through the data. Teachers often become stymied by what to do next when the results of what they knew how to do the first time were not as positive as they desired. Coaches, therefore, want to reinforce that teaching requires continuous inquiry and improvement and the use of research- and evidence-based practices. Sometimes, coaches feel compelled to help teachers fix or solve the problems they identify.

Yet the coaches who resist this temptation and facilitate teachers in discovering their own interventions give teachers the gifts of greater independence, professionalism, responsibility, and accountability for their results.

Coaches use strong facilitation, a variety of data protocols, and questioning skills to guide teachers in examining data thoroughly and accurately and in using the data to make and apply informed decisions about instruction.

SNAPSHOT

A coach as a data coach

Nicky Tran is a coach at Cherokee Elementary School.* She has been planning with the principal and assistant principal for an upcoming data conversation with 5th-grade teachers. The principal and assistant principal already led a schoolwide data conversation with the entire faculty about schoolwide results. Now, each grade level will repeat this process with its own data to establish its respective grade-level achievement goals and develop an action plan aligned with the school's improvement goals.

The coach and administrators looked through the 5th-grade data and identified trends and patterns. At their meeting with Tran, administrators asked her to adapt one of the data-analysis protocols to focus first on student strengths before identifying the most significant gaps in student learning. They also decided that it would be best to have Tran meet with the team without the administrators present so that there is more opportunity for honest interaction and less worry about being judged or evaluated.

The 5th-grade-level team is known as a tough group and resistant to changing their classroom practices. As Tran opens the meeting, she sets some agreements about speaking openly and honestly, using the data to support inferences, and staying positive and action oriented. She invites team members to add other agreements. Team members ask if Tran will report what occurs in the meeting to the administrators, and she notes that is not her responsibility; instead, she points to the data-reporting form the team will use during the meeting and will share with principals. She immediately asks for a volunteer to fill out the form electronically while projecting it on the screen.

Next, Tran reviews the protocol she has adapted for the team's use in their two-hour meeting, answers their questions about the process, and invites a timekeeper to help them move through the protocol.

After some initial tension and uneasiness, the 5th-grade teachers dig into the task. By both sharing responsibility for managing the data conversation and engaging everyone in the work by asking for an individual's contributions when anyone was silent, Tran assists the team in creating a safe space to engage in data work. First, teachers spent a few minutes privately writing their predictions about the whole grade level and their own students. Tran asked them to put these away for later. Next, they identify areas of student learning to celebrate and chart those. Next to each, teachers suggest and record strategies they used that might have contributed to those successes.

Knowing the types of questions to ask as well as the sequence in which to ask them are skills coaches use to encourage thorough examination and appropriate use of the data (see Tool 4.5). Being able to accurately assess teachers' engagement in data conversations and adjusting their processes to be responsive to teacher needs are essential for coaches when they facilitate data conversations. They apply communication tools such

Then, following the protocol, they identify gap areas, those areas in which student learning was not as expected or desired. This is harder for teachers to do and they often express that certain students are so far behind that they can't be held responsible for the performance. Tran reminds teachers that they are identifying areas now and will examine how to address them later and reminds them of the agreement about blaming. They chart these areas and then prioritize them based on the curriculum. She guides the team in selecting their top priorities and writing three actionable goals for those areas. She explains that identifying more than one at this point will help them determine which goal is most important to work on. Teachers pair off to write a goal for each area and post them so all teachers can see them. They discover that there is strong overlap and decide to condense the goals into two.

The next part of the protocol focuses on proposing some actions to take. This is a difficult task because teachers are not likely to propose actions they are unfamiliar with, yet repeating what they have done in the past is likely to get them the same results. To counter this conundrum, Tran asks the team to focus just on three areas — instruction, curriculum, resources — in which to propose actions. She also brings a resource of best practices in literacy for teachers to use as they consider how to address their priority areas. She reminds them that the curriculum is set, but that the daily curriculum in terms of their lesson and unit design is a place for them to act. She also suggests ways to consider instructional shifts and identifies some resources to consider such as more time for planning and opportunities for professional learning.

Teachers suggest possible actions to address the identified needs, including flexible grouping, ways to differentiate upcoming lessons, and alternative instructional resources and strategies. Tran congratulates them for thinking so boldly about their actions and asks them to propose only those that are supported by research as the high-priority ones in their data report to the administrators. At the end of the meeting, the team reviews the projected data form with each team member identifying areas he or she is willing to lead. They also decide when they will meet again for the next step of their work. As teachers leave the meeting, they are well on their way to solidifying their plan and are prepared to meet with administrators to discuss their proposal and seek support.

**Fictitious name and school*

as listening, probing, and paraphrasing to keep data conversations productive and positive. Data coaches know about a variety of data conversations with individuals and teams and when to use each type to accomplish different purposes. To facilitate data conversations, coaches use plans or agendas, yet are flexible enough to adjust the plan as the conversations move ahead.

Coaches face challenges as data coaches

Coaches face several challenges in this role. One challenge is the coaches' preparation to understand the data before facilitating data conversations. Coaches prepare or select a protocol — a series of questions or a process — to guide data analysis and interpretation and action planning. This means that coaches, after scanning the data, plan so they can ask the right questions rather than interpret the data for teachers. A significant part of a data conversation is addressing inequities, gaps, or discrepancies evident in the data without making excuses or accepting that nothing can be done to achieve better results. When teachers come to their own conclusions about the data, they understand the need to change their practice and have a stronger sense of ownership for doing so.

The second challenge, assisting grade levels or departments to make decisions based on the data and act on their decisions, is a necessary and difficult part of effective data conversations. Coaches help teachers move beyond what the data mean to determine what actions will close the gap between where their students are and where they can be. Coaches may spend time proposing possible hypotheses about causes for certain results that are uncomfortable to teachers and engage them in deciding what to do to change the results. As data coaches they are willing to ask the difficult questions and facilitate the hard conversations to push teachers beyond lamenting, "This is the way it is" to determining, "This is what is possible to improve results for all students." They can take these bold steps because coaches are driven by a growth mindset about student and teacher capacity to grow and learn.

The third challenge is creating a nonthreatening, supportive environment that encourages teachers to be open and honest in data conversations. Coaches assess what Anthony Bryk and Barbara Schneider (2004) call "relational trust" and design strategies to increase this trust among teachers, between teachers and the coach, and between teachers and administrators. In helping develop such trust the goal is to move the school forward in proactive ways to strengthen student achievement, teacher collective responsibility, and a culture of collaboration and continuous improvement through data conversations.

Finally, a fourth challenge is building teacher capacity to take full responsibility, individually and in teams, to engage in data analysis, interpretation, and use without the support of the coach. The continued dependency on the coach restricts teachers' uses of data to the coach's availability, while the desire is to increase data-informed decision making as a routine part of professional practice each day. When coaches make the process transparent, provide readily accessible resources, and then step back and gradually release ownership for the data process, they build teachers' capacities to engage in this work independently and collegially. The coach, then, can continue to support the team with innovative ideas, new protocols or processes; help solve emerging problems; or assume another role, such as an instructional or curriculum specialist, to support teaching and student learning.

Conclusion

Data coaches are instrumental in facilitating teachers' capacity to determine areas of focus for improvement; identify celebrations; and use evidence to monitor, assess, and evaluate progress at the individual, classroom, and school levels. Because data drive decisions at all these levels, many coaches spend a large portion of their time in this role and are often asked to build others' data literacy capacities.

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Tools index for Chapter 4

Tool	Title	Purpose
4.1	**Analyzing levels of performance**	Use this process to analyze different levels of performance in student work and apply a plan of instruction.
4.2	**Data analysis template for cognitive skills**	Use this template to identify cognitive skills associated with student work and identify next-step instruction.
4.3	**Data-driven dialogue about student work**	Use this template to guide teachers in looking at and analyzing student work.
4.4	**Fishbone diagram**	Use this tool to identify possible root causes for data-identified problems.
4.5	**Data analysis cycle**	Use this tool to provide an overview of the data analysis cycle with questions to ask teachers.