Roadmap for Educator Licensure Policy Addressing Data Literacy

Key Focus Areas to Ensure Quality

DATA FOR ACTION

Where are we going?

Data use should be **integrated into teachers' everyday practice** as one tool for improving student achievement. To do this, teachers need to know how to use multiple types of data and how to translate data into decisions. To ensure that teachers are ready to use data effectively and ethically to improve student achievement, states can include data literacy skills requirements in their teacher licensure policies.

State licensure policies are meant to provide preparation programs direction about the skills that teachers need to be qualified to teach. States should make the demonstration of data literacy skills a requirement for becoming a licensed teacher.

How do we get there?

The ability to effectively use data includes a set of skills that teachers (and administrators) need to use data both collaboratively and individually to inform instruction. We recommend focusing on 10 key data literacy skills that can be embedded in a state's licensure policy as a way to direct instruction in effective data use.* These 10 skills work best as a comprehensive menu, with all skills hanging together and building on one another.

Skill 1 **Access and gather relevant data from available sources:** Knowledge of and ability to access information from multiple available sources, including both state and local systems.

Skill 2 **Synthesize and analyze diverse data:** The ability to explore and organize many types of data.

Skill 3 **Know about and use student-level and other types of data beyond assessment data:** Understanding that multiple types of data beyond student assessments can be used to inform practice.

Skill 4 **Understand how to use different types of data:** The ability to know how different types of data are relevant to different problems or questions and the relationships among data from multiple sources.

Skill 5 **Engage in a data-driven and cyclical inquiry process:** The ability to engage in the ongoing process of identifying classroom and system problems, forming questions and hypotheses about each issue, collecting and analyzing relevant information and translating that information into action steps, and subsequently determining whether the action worked and repeating the process.

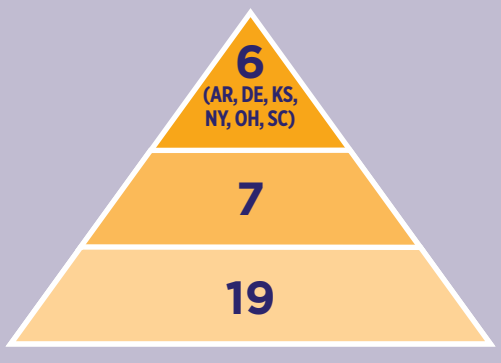
*A group of more than 20 organizations worked to develop these skills and other recommendations about data literacy. For more, see the report, *Data Literacy: It's About Time.*

Where are we coming from?

On DQC's *Data for Action 2013* survey, 19 states reported having teacher licensure policies that included data literacy. A review of these 19 policies by independent researchers at WestEd found that seven states (FL, KY, NC, NH, TN, UT, VA) met the criteria for good implementation and six states (AR, DE, KS, NY, OH, SC) met the criteria for great implementation.

NUMBER OF STATES:

Great implementation | Good implementation | Total implementing work



Skill 6 **Use data to tailor instruction to diverse groups of students:** The ability to use data to inform practice with unique subgroups such as English language learners, students receiving special education services, students with low socioeconomic status, and other populations.

Skill 7 **Use one's own data:** The ability to use one's own performance data and other relevant data to assess and reflect on personal practice for the purpose of continuous improvement.

Skill 8 **Facilitate student understanding of data:** The ability to use data to communicate with students about their progress so that they can evaluate their own performance and set goals.

Skill 9 **Communicate about data with diverse internal and external stakeholders:** The ability to communicate about data with groups such as students, parents, educator peers, the community, school board members, and others as appropriate.

Skill 10 **Know about and be able to use data that are currently applicable for and relevant to practice:** The ability to understand and use up-to-date data resources including growth, value-added, proficiency, early warning, and feedback data—and others as they emerge (with appropriate professional development)—to evaluate student progress and inform practice.

How can states do this work?

As states review their licensure policies and examine whether the included skills support best practices for developing a data literate workforce and improving student achievement, they can also specify additional supports to promote teachers' effective use of data:

- **Ensure teacher access** to state and local data systems.
- **Collaborate with teacher preparation programs** to embed the development of data literacy skills into preservice training.
- **Support ongoing professional development** that is focused on effective and ethical data use.
- **Support principal data literacy** as principals are critical for creating a culture of and supporting teacher data use.

One State's Story

Arkansas is one state that has included data literacy skills in its licensure policy. Arkansas has adopted the Interstate Teacher Assessment and Support Consortium (InTASC) teaching standards, which are steeped in data and assessment literacy language, and has also gone further by writing its own language that prioritizes data literacy and use. The resulting Arkansas Teaching Standards require that a teacher be able to understand and use "multiple methods of assessment to engage learners in their own growth, to monitor learning progress, and to guide the teacher's and learner's decision making." The standards also require collaborative data work: the teacher must work "independently and collaboratively to examine test and other performance data to understand each learner's progress and to guide planning." And teachers must be "committed to the ethical use of various assessments and assessment data to identify learner strengths and needs to promote learner growth." In addition to these components of the state licensure policy, Arkansas also supports the ability of teacher preparation programs in the state to train teachers with the data literacy skills they need by sharing information about teachers' school characteristics, performance, and certification level.

SKILL 1

Access and gather relevant data from available sources

Teachers should know about information from multiple available sources, including both state and local systems, and know how to access this information.

How does this skill contribute to excellent teaching and learning?

Teachers cannot use the data if they cannot find the data. Teachers must understand how to access different types of data from many sources appropriate to the question at hand, including from state and local data systems. Often, effective data use begins with "Data 101"—the basic skills needed to understand how to get to data, related terms, and more.

SKILL 2

Synthesize and analyze diverse data

Teachers should be able to group, explore, and make sense of multiple types of data about the inputs and outputs of their students' learning.

How does this skill contribute to excellent teaching and learning?

Data are not very useful when they are left as individual data points on a spreadsheet. Teachers need to be able to transform, compare, and translate data to ultimately apply those data to answering questions about their students' learning. When data are left as individual points, educators are often left "admiring the problem" rather than being able to use the data to answer questions and see the next step.

States must play a role in providing data analytics so that teachers do not spend too much time organizing data. While teachers do need the skills to synthesize and analyze data, supports from the state and district and from school leadership ensure that the context for data use is provided and that teachers have time to *use* rather than only to organize data.

SKILL 3

Know about and use student-level and other types of data beyond assessment data

Teachers should understand that data that inform practice come from multiple sources including, but not limited to, student assessments.

How does this skill contribute to excellent teaching and learning?

While assessment data are powerful, and have been the primary source of data available to teachers to date, data are far more than test scores. Teachers who have knowledge about the other types of data at their disposal will have the strongest data tools to support their students' learning. Belief that data are *only* test scores also limits trust in data as a tool.

For example, frequent absences often predict future academic problems. Teachers who can identify this trend in a student's data can take action, such as working with the school and the student's parents to intervene before the student begins to struggle.

SKILL 4

Understand how to use different types of data

Teachers should know how different types of data are relevant to different problems and questions and the relationships among and uses for data from multiple sources.

How does this skill contribute to excellent teaching and learning?

The wealth of data available to teachers cannot be maximized unless educators have been trained on how to use different types of data to answer different questions about their students' learning. When is using a formative assessment the best choice? When are student portfolio data appropriate? What can I learn from my students' attendance data? In addition, teachers also need to understand the relationships among data from multiple sources (including state, district, building, classroom, and other sources). Misunderstanding which data are appropriate for answering daily classroom questions is a barrier to effective data use and contributes to mistrust and feeling overwhelmed by data.

SKILL 5

Engage in a data-driven and cyclical inquiry process

Teachers should be able to engage in an ongoing process of identifying classroom and system (such as grade or building level) problems, forming questions and hypotheses about each issue, collecting and analyzing relevant information and translating that information into action steps, and subsequently determining whether the action worked and repeating the process.

How does this skill contribute to excellent teaching and learning?

Data use is not a one-time event done at the beginning of the school year. Teachers need to be able to use data to monitor student progress throughout the year, identify particular issues, and use appropriate data to monitor the issues. Without effectively engaging in a cycle of inquiry, educators may be unable to ask the questions that are needed to choose an appropriate action. For example, a teacher should recognize that a particular student is struggling in reading, be able to adapt his or her practice to address these challenges by working with a reading specialist or assigning additional reading activities, ensure that the student's next reading assessment shows improvement, and again ask needed questions and take action.

The cycle of inquiry is the crux of data use *for* instruction. Being able to access and synthesize multiple types of data are building blocks for using those data to ask questions and seek solutions to inform practice and improve student achievement.

SKILL 6

Use data to tailor instruction to diverse groups of students

Teachers should be able to use data to inform practice with unique subgroups such as English language learners, students receiving special education services, students with low socioeconomic status, and other populations.

How does this skill contribute to excellent teaching and learning?

Every teacher knows that some students come into the classroom faced with more challenges than others. Multiple sources of data about subgroups of students help teachers understand both aggregate and individualized challenges for their students. For example, low-income students in a school may struggle overall relative to their peers. This aggregate information allows teachers to collaboratively and individually identify a problem and seek out the root. Are *all* low-income students struggling with the same problem, like reading fluency? Or are the issues more individual to students, age groups, subjects, or classrooms? Without both aggregate and individual data about subgroups of students and the skills to use that information to inform practice, teachers lack the information needed to seek out solutions.

SKILL 7

Use one's own data

Teachers should be able to use their own performance data and other relevant data to assess and reflect on personal practice for the purpose of continuous improvement.

How does this skill contribute to excellent teaching and learning?

Data on student performance are also a powerful tool for teacher continuous improvement. Without data on their own progress, teachers are shooting in the dark and may not be able to identify which practices are and are not working for their students. For example, by reviewing her classroom data, both for that year and over time, a teacher may see that she improves student achievement best among students who entered the classroom with below grade-level proficiency, but she struggles to grow the students who came in on grade level. Teachers can then work, with principal and colleague support, to identify their successful practices and see how they could be better applied to other students in the classroom.

SKILL 8

Facilitate student understanding of data

Teachers should be able to use data to communicate with students about their progress so that they can evaluate their own performance and set goals.

How does this skill contribute to excellent teaching and learning?

Students benefit when their teachers use data to plan their teaching and personalize learning. Further, students also benefit from communicating with their teachers directly about their own performance and how they can do better next time. Teachers need to be able to talk with their students about the student's own data in a meaningful way that engages students in their own learning process by helping them set goals, see their own progress, and be a partner in improving their achievement.

SKILL 9

Communicate about data with diverse internal and external stakeholders

Teachers should be able to communicate about data with groups such as students, parents, educator peers, the community, school board members, and others as appropriate.

How does this skill contribute to excellent teaching and learning?

Beyond working with data in the classroom, teachers also need to be able to communicate about data with other stakeholders such as parents, other teachers, members of the public, and school board members. When teachers communicate with parents, they can engage them in their child's education and share specific, personalized steps that parents can take to help their child excel in school. When teachers are able to talk about data with other teachers at their school, they can work together to identify best practices and help each other with their strengths and weaknesses in the classroom. Teachers can talk about data with their principal to understand how well they are helping each of their students and to improve their own performance. Finally, when teachers are able to articulate the value of data in helping them to improve student outcomes and help each student achieve, they become skilled education advocates in the community.

Communicating with data does not mean teachers should be able to explain how a growth model works in a public forum. Rather, it is the ability to take information and frame why it is useful and what it shows in ways that multiple stakeholders can understand.

SKILL 10

Know about and be able to use data that are currently applicable for and relevant to practice

Teachers should be able to understand and use up-to-date data resources including growth data (a student's knowledge and skill acquisition over time), value-added data (how a teacher contributed to a student's growth), proficiency data (a student's skill level), early warning data (identifying students who may need extra assistance to succeed and graduate), and feedback data (how well a school's graduates do after high school)—and others as they emerge (with appropriate professional development)—to evaluate student progress and inform practice.

How does this skill contribute to excellent teaching and learning?

Data tools are ever changing, and teachers need awareness of the latest tools and an aptitude for using new tools and types of data as they become available, as well as appropriate professional development to support new skills. Data can yield valuable information relevant to policies ranging from teacher evaluation to curricula decisions and school funding. For example, teachers can use data (or provided data systems with built-in analytics) to understand how well their students are performing relative to other similar students, how well they are helping each of their students grow (regardless of their proficiency level), which of their students may be at risk for not graduating high school, and how well their school prepares its graduates for success in college and careers as one part of effective teaching.

How can states supplement their licensure policies and create supporting conditions for success?

Beyond writing the 10 skills described on the previous pages into their licensure policies, states can also support in other ways the development of the critical data literacy skills that help teachers teach effectively and ethically.

PROMOTE DATA USE SKILLS:

- **Embed the definition of data literacy** into not only licensure policies, but also other policies including program approval and professional development.
- **Use licensure exams and performance assessments** to measure whether educators have needed data literacy skills before entering the classroom.
- Promote, support, and incentivize **quality, ongoing professional development** focused on data use to improve instruction.
- **Incorporate evidence of teacher data literacy skills** into teacher evaluations for continuous improvement.

ENSURE EASE OF ACCESS:

- **Provide teachers with actionable, easy-to-access data.**
- Ensure that districts and schools have the needed **technical infrastructure** for easy data use.
- Promote, support, and incentivize districts and schools to **use time and resources in new ways** that foster data use.

These recommendations were developed by a group of experts including representatives from state departments of education and national organizations. For more information, read DQC's *Data for Action 2013* report.