Madison Education Partnership

Understanding the Quality of Instruction in Madison 4-Year-Old Kindergarten

Authors*

Kaitlyn Young
Erica Ramberg
Leah Awkward-Rich
Kathryn Boonstra
Jill Hoiting
Julianne Snyder
Elizabeth Graue
Eric Grodsky
University of Wisconsin - Madison

Amanda Jeppson
Elizabeth Vaade
Madison Metropolitan School District

Madison Education Partnership

The Madison Education Partnership (MEP) is a research-practice partnership between the University of Wisconsin (UW) – Madison School of Education's Wisconsin Center for Education Research and the Madison Metropolitan School District (MMSD). MEP provides a context for collaborative problem identification, jointly designed empirical research to address problems of practice, development of educational interventions, and the creation of mutually beneficial lasting relationships across the UW and MMSD. The partnership serves as a conduit to establish new research within the district, enhances research use for the district, and creates mechanisms for the dissemination of new knowledge in Madison and beyond.

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Executive Summary

In this project, the Madison Education Partnership (MEP) brings together (a) teachers and administrators supporting the Madison Metropolitan School District (MMSD) four-year old kindergarten (4K) program and (b) researchers from the Wisconsin Center for Education Research (WCER) to design a professional development series for 4K teachers. To ensure the professional development series is relevant and impactful for 4K teachers, we set out to understand current instructional practices through classroom observations and focus groups with teachers. This report summarizes our findings and makes recommendations to guide professional development practices for 4K teachers.

We found compelling strengths in MMSD's vibrant, cross-site 4K program. We observed that 4K teachers provide **emotional support** to their students as well as create and maintain a **positive classroom climate**. Their interactions with students are generally **thoughtful and sensitive**. Additionally, teachers vary their instructional strategies in productive ways; they engage in **multiple instructional approaches**, taking advantage of the learning opportunities that arise from student interactions. The areas of strength we saw in 4K classrooms create an excellent foundation on which to further build educational practices.

We also saw several opportunities for growth in MMSD's 4K program, largely related to instructional depth and rigor. 4K teachers should work toward enhancing student engaged discussions and designing activities in both whole group and center settings to **encourage student creativity, analysis, and reasoning**. While repetition and direct instruction are essential components of 4K classroom engagement, they dominated many of the teacher-student interactions we observed. Likewise, teachers could more effectively **develop their feedback** to students to support more dynamic interactions with learners, helping students clarify their thinking and reasoning. In the domains of literacy and mathematics, teachers have the potential to **develop a greater level of depth of academic content and learning**. While teachers support student learning in these domains through intentional instruction, teachers could be more responsive to student interests and needs. The structure of centers and transition times present excellent opportunities to enhance instructional practice.

Our Methods for Collecting Information

We collected data from three sources across school-based, community-based, and Head Start sites to understand 4K teachers' strengths and opportunities for growth. We recorded classroom instruction using the Preschool Classroom Assessment Scoring System (CLASS), a research-based observation instrument designed to assess the quality of teacher-child interactions. For about half of the classrooms we observed, we also completed semi-structured observations using a protocol we designed to provide detail on instructional practice, content, and formats, as well as the physical learning environment. Lastly, we completed focus groups and interviews with 4K teachers to understand their own sense of their strengths and opportunities for growth as well as their preferences for professional

development content and structure. After a brief explanation of the tools and methods utilized in this project, the following sections summarize the data from each of these three sources of investigation.

Classroom Observations

The Classroom Assessment Scoring System (CLASS). The CLASS is a validated measure of classroom environment that requires trained observers to assess classroom quality on three domains: (1) Emotional Support, (2) Classroom Organization, and (3) Instructional Support (Pianta, La Paro, & Hamre, 2008). These three domains include multiple dimensions that receive scores within three ranges: Low (score of 1 or 2), Mid (score of 3, 4, or 5), and High (score of 6 or 7). Trained observers— graduate students, Reach Dane staff, and school district staff—completed 63 classroom observations. School district staff collected CLASS data in the classrooms of 31 4K teachers in the spring of 2018, covering 18 schools and 9 community sites. Graduate students and Reach Dane staff collected CLASS data from November 2018 through April 2019, covering 29 4K classrooms: 15 school-based rooms, 11 community sites, and 3 Head Start rooms. Each observation included two to four CLASS observation cycles that last 30 minutes each; the first 20 minutes are for observation and note-taking and the last 10 minutes are for scoring. During these observations, observers documented a variety of activities, including whole group instructional time, structured play time, and meals, all within the classroom setting.

Semi-Structured Observation. We designed the semi-structured observation protocol to complement the CLASS by providing detail on instructional practice, content, and formats, as well as the physical learning environment. Pairs of graduate students completed the semi-structured observations in tandem with the CLASS observations, collecting data in three 30-minute cycles. In the first five minutes, the observer captured a snapshot of the classroom activities, followed by 15 minutes of ethnographic note-taking that primarily followed the teacher's activities. The observer used the final 10 minutes to add details to notes and identify instructional content and formats for the observed time. In the three Reach Dane classrooms, the graduate student would only capture the semi-structured observation while Reach Dane staff completed the CLASS observation. See Appendix A for the Semi-Structured Observation protocol.

Focus Groups

Beyond our observations of 4K classrooms, focus groups and interviews help us gain teachers' perspectives on what professional development opportunities they would find beneficial, their strengths, and their areas for growth. We completed four focus groups—with a total of 21 teachers—and three individual interviews. To capture the variety of experiences and differences across settings in 4K classrooms in the district, we aimed to have representatives from each type of 4K site involved in the focus groups and interviews. Participants included members of the teacher leadership team for the school district's 4K program (n=9), 4K

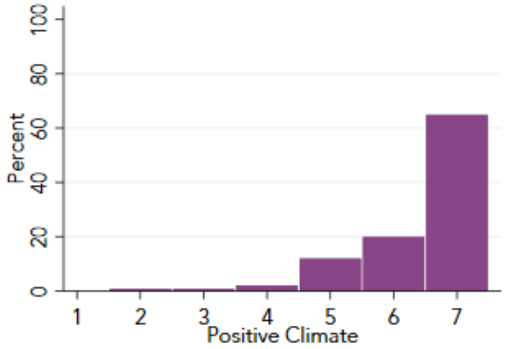
teachers from high-income (n=5) and low-income (n=3) school sites, 4K teachers from high-income (n=4) and low-income (n=1) community 4K sites, and Head Start programs (n=2)[1]. Some teachers reported teaching 4K for 2 years and some reported over 20 years of experience. Two of twenty-six participants were male. See Appendix B for more details on the focus group protocol.

What We Learned from Observing 4K Classrooms

4K teachers have strengths in the **Emotional Support** and **Classroom Organization** domains of CLASS and opportunities for growth in the **Instructional Support** domain. The following sections detail findings across each of these three domains. We provide excerpts from the semi-structured observation data to illustrate these CLASS findings. Note that the CLASS scoring takes into account consistency and frequency of practices while excerpts focus on examples of specific practices.

4K Teachers Demonstrate Strength in Being Emotionally Supportive

The Emotional Support domain on the CLASS measures Positive Climate, Negative Climate, Teacher Sensitivity, and Regard for Student Perspectives. 4K teachers generally create positive classroom climates, are sensitive and responsive to student needs, and consider the interests of the children in their classrooms.



Teachers have a median score of 6 out of 7 for Positive Climate and Teacher Sensitivity; a median score of 5 for Regard for Student Perspectives; and median score of 1 for Negative Climate. As can be seen in the figure for Positive Climate, most classrooms were rated as a 7, demonstrating the warmth and inclusiveness of 4K classrooms in MMSD. Taken together, these scores indicate that teachers are sensitive, responsive to student needs, and consider the interests of the students in their classroom.

See Appendix C for a graph of the CLASS ratings for the Emotional Support domain. The field note below, taken from the semi-structured observation, shows an example of high Emotional Support.

> *The teacher is talking to the boy and his mother. The teacher shows the boy some wooden numbers on one of the tables; he seems to be upset that his mother is leaving – he holds onto her hand and continues standing very close to her and though she seems to be trying to leave.*

[1] "Low-income" sites are sites at which 50% or more of 4K students we observe in 5K a year later receive free or reduced priced lunch.

> *The teacher stands near the boy and his mom as they say goodbye; she gives the boy a hug and talks softly to him when the mom leaves through the classroom door. The teacher picks the boy up and carries him farther into the classroom; she continues to talk softly to him about the available activities in the room. After putting the boy down, the teacher puts her arm around his shoulder and leads him over to the table where she was sitting before with the girl who is still coloring. They sit down with the boy in the teacher's lap.*

In this example, the teacher demonstrates awareness, responsiveness, and the ability to address problems, all characteristics that are important to the Emotional Support domain on the CLASS. The teacher notices that the boy is struggling with the separation from his mother. She acknowledges his emotions and provides him with comfort through close proximity, physical affection, and a calming tone. The example demonstrates the teacher's ability to provide help in an effective and timely way to resolve emotional struggles so that the child can continue to learn.

Although most of the observations were overwhelmingly positive, we also saw instances of low Emotional Support. The following example, taken from the semi-structured observation, demonstrates an occasion where a teacher displays low Emotional Support as measured by the CLASS:

> *The teacher goes to sit with two boys who are sitting side by side at the table by the door. Both of their names are pretty long. She offers them a lot of help with assembling their name puzzles, pointing to each letter that is written on the bag, directing them to find the 'puzzle' piece that matches it. Occasionally one of them picks up the wrong letter; she quickly corrects them: Nope, not yet. Look, if you'll notice, that's at the very end. She has one hand on each boy's puzzle, toggling between them. To one boy: now find your "a," she says, while she points. Now your "e'. To the other boy: See that d? That's the one you had upside down earlier. Then it looked like a p. See?"*

In this example, while the teacher promptly notices the students' difficulties in completing the name puzzle, her support is not sufficiently individualized to match each child's needs and abilities. Additionally, while she offers help, it is in the form of direction rather than building the students' understanding and supporting them in working through the difficult task. While the students continue to try and take the risk of choosing an incorrect letter, the teacher's response does not offer comfort or encouragement.

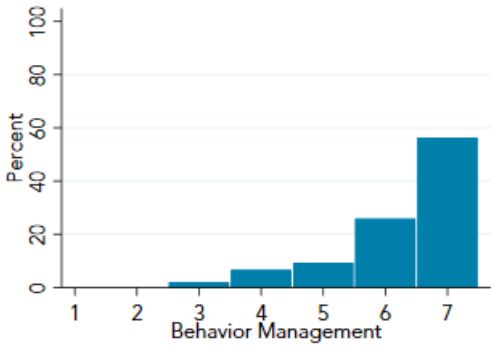
Although there were some instances where teachers display lower levels of Emotional Support, MMSD 4K teachers generally display high levels of Emotional Support—a median score of 6—as measured by the CLASS and consistent with the semi-structured observation.

Key Findings from the Emotional Support Domain

- Teachers frequently demonstrate warm relationships, conveying genuine enthusiasm and positivity, and communicating respectfully with children.
- 4K teachers are consistent in their awareness of children who needed extra support.
- Teachers can develop skills in being more sensitive to students' academic needs.

4K Teachers Have Strong Classroom Organization

4K teachers in MMSD attain high scores across dimensions on the Classroom Organization domain on the CLASS. Teachers have a median score of 6 on Behavior Management and Productivity and a median score of 5 on Instructional Learning Formats, indicating they generally have strong behavior management skills, use classroom time productively, and use teaching strategies that maximize student educational development. As can be seen in the graph, 4K teachers in MMSD most frequently receive scores within the high range on the CLASS in behavior management, speaking to their skills in cultivating and maintaining classroom structure.



See Appendix C for a graph of the CLASS ratings for the Classroom Organization domain. The field note below, taken from the semi-structured observation, shows an example of high Classroom Organization.

> *For the next activity, Joy [pseudonym] rolls a large hand-made die; each face has a picture/phrase for a different motion, all fall-themed (picking up leaves; stuffing a scarecrow; climbing an apple tree; bobbing for apples; picking up a pumpkin). She rolls the die, reads the motion, and guides the kids in performing it. They all seem to participate eagerly, smiling and laughing as they mime the activities. Joy calls out a few rhetorical questions (Did you get one? Are you high up? Did you find a big one?). Kids occasionally answer (yes!) and Joy replies, "ok!" or "good!"*
>
> *When they roll "stuff a scarecrow," kids don't immediately start miming the gesture, and she asks "What would it look like if you stuffed a scarecrow? Who remembers what a scarecrow is? Let's start with that. A boy raises his hand and answers "it's a thing to scare crows with!" A boy stands in front of Joy with his hand raised. She says "I can call on you when you're on your spot." He replies "Ok" and moves back to his spot. She invites him to answer. She offers her own explanation for what a scarecrow is. They move on to the next roll: Bob for apples. T: If you're bobbing for apples, are you standing up? Oh look, [child] has it already. If you're*

bobbing for apples, you're on your knees. Did you get one? She asks rhetorically, then responds ok.

In this example, the teacher employs a variety of modalities in learning, including the large visual cues of the die, auditory expression in her definitions and questions and the movement involved in miming that seasonal activities. She utilizes the various modalities to effectively facilitate the activity to encourage participation and engage children.

Although there were instances when teachers demonstrated strong Classroom Organization skills, there are areas in which teachers can improve. Below is an example where a teacher could bolster their skills in providing different learning opportunities, an important aspect of classroom organization, as defined by the CLASS:

The children have just come in from recess. They are sitting in a circle around the rug. They are calm and seem to be engaged and excited. They are listening to the teacher. The teacher begins to read a book. The children smile and laugh at the title of the book. They talk excitedly to the teacher about the book and other books they have at home. The teacher starts reading the book. Most children are looking quietly at the book while she reads. At the end of the lines of the book, some of the children laugh, smile, or repeat words from the book or make a comment. "Balloon." "She's floating!" "Look at her tummy!" The teacher responds to some comments affirmatively or by nodding and smiling. The teacher explains the word "quirky" to the class. Some children fidget, playing with their hands or rocking back and forth a little bit, or have their fingers in their mouths. Girl: "that's the end!" at the end of the book. The teacher asks if the children liked the book and they all clap appreciatively.

In this example, the teacher experiences success in engaging most of the children in reading a book for at least some of the time, as demonstrated in their laughter and repetition of words. To increase the level of instruction, the teacher may have used more lines of questioning to involve and engage more students for longer periods of time. Another strategy may have included introducing additional modalities, such as movement or miming of the story. Lastly, there is an opportunity to more clearly orient students to the learning objectives for the specific book being read.

There is room for growth in providing students learning opportunities that encourage and expand student engagement, helping students engage in the learning objectives and lessons. In doing so, teachers will be able to deepen and focus student engagement. Despite these areas for growth, 4K teachers in MMSD have strong abilities in setting and reinforcing clear expectations and routines for children's behavior, proactively monitoring the classroom to prevent problems, and effectively redirect children by focusing on positive examples. Additionally, teachers maximize learning time by providing activities for children and efficiently working through disruptions.

Key Findings from the Classroom Organization Domain

- Teachers have clear expectations and routines for students as well as have the ability to monitor and prevent classroom disruptions.
- 4K teachers maximize learning time by providing activities for children to engage in while working through classroom disruptions.
- Teachers should develop their skills in encouraging and expanding student engagement throughout the classroom.

4K Teachers Have Room to Improve in Instructional Support

The Instructional Support domain of CLASS includes Concept Development, Quality of Feedback, and Language Modeling dimensions. 4K teachers in MMSD do not consistently interact with children in ways that facilitate feedback loops that enhance children's understanding or contribute to language development; they received scores within the low and middle ranges across dimensions on the Concept Development domain. Teachers attain a median score of 2 on Concept Development and Language Modeling and a median score of 3 on Quality of Feedback, indicating the need to meaningfully engage in conversation with their students to promote higher-order thinking and understanding of content.

See Appendix C for a graph of the CLASS ratings for the Instructional Support domain. The field note below shows an example of low Instructional Support.

> *A student is cutting out rectangular pictures of cars and ambulances to complete a pattern worksheet: it has three rows, each with an A/B pattern of pictures. Teacher points to the pictures in the first row and the student states "car." The teacher him (something like; "yes! Car!") and feeds him the next picture: "ambulance." She wants to help him figure out what comes next. She leads him in pointing to and stating each picture in the row of four. He incorrectly states "car" as the next one in the sequence and she suggests that they do it again. He again answers incorrectly and she guides him through it again. The last time through he answers correctly.*

This example demonstrates multiple opportunities for increasing the quality of feedback. The teacher provides perfunctory feedback and ignores the problem in the student's understanding, instead prompting the student to try again without additional support or information. The teacher could scaffold student understanding by providing hints for identifying the pattern or pause with the student to examine the picture more closely and ask follow-up questions to the student regarding the differences that he sees. The teacher also

could provide specific feedback on the use of these strategies to reinforce the student's learning.

Despite generally low scores in the Instructional Support domain, there are some stronger instances of Instructional Support:

> *Teacher picks up a plastic cup containing a melting icicle that one of the boys snuck inside in his pocket after recess. She holds it up for everyone to see and asks them to watch as she pours a small amount of water out of the cup onto the floor. "What's happening?" she asks. Someone calls "it's melting." "What do you think would happen if you had it in your locker?" she follows up. One student answers that it would get wet on the locker. A second teacher responds: "Right, it would melt on your coat and hat and stuff." She explains: "I'm going to leave it in the cup to see if it melts all the way." Turning to put the cup away, she adds: "So that's why we don't bring them in."*

In this mid-range example of Instructional Support, the teacher elicits some analysis and reasoning from students in regard to the consequences of the icicles melting inside and connects the concepts to the students' every day experiences. However, she misses an opportunity to further encourage reasoning and analysis through questions and discussions. Additionally, the teacher may have utilized this situation as an opportunity for students to cultivate their own ideas about how to experiment with the melting process.

Key Findings from the Instructional Support Domain

- Teachers elicit some analysis and reasoning from students.
- Skills need to be built in providing feedback that furthers student analysis and problem-solving, such as asking guided questions, helping students identify patterns, and providing reinforcement for appropriate use of problem-solving strategies.
- Teachers need to extend their language use in the classroom in order to extend and develop student language use.

CLASS data on Instructional Support as well as the semi-structured observations that align with this domain indicate that Instructional Support is an opportunity for growth. We paid particular attention to instructional practices in mathematics and literacy.

Instructional Support in Mathematics and Literacy

Based on our observations, we distinguish among six types of instructional interactions: spontaneous, intentional, one-off, sustained, reactive, and responsive. For each type of interaction, we considered which qualities—listed below—were primary and which were more variable or dependent on other qualities:

- Depth of Engagement: How an interaction shifts children's engagement with content or an activity.

- Connectivity to Classroom: How the interaction connects to learning in the classroom, both in-the-moment and beyond.
- Connectivity to Children: How the interaction connects to what children are already doing and saying, prior knowledge of children's interests, experiences, learning strengths or needs.
- Flow of Interaction: Who controls the interaction, including who initiates, who drives/sustains the interaction, and who decides when the interaction is finished.
- Flexibility: How planned an interaction seems, how much teachers shift foci of interactions based on children, and how outcome or process oriented an interaction may be.
- Duration: How long interactions lasts.

Table 1 shows a brief overview of the qualities by instructional interaction. Secondary qualities are noted in italics.

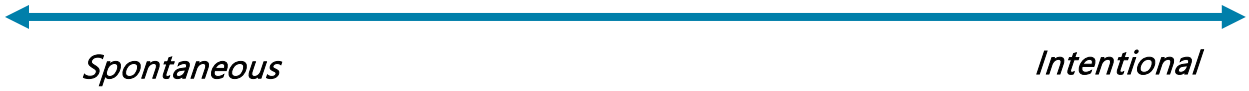
Table 1

Instructional Interactions and Qualities

	Depth of Engagement	Connectivity to Classroom	Connectivity to Children	Flow of Interaction	Flexibility	Duration
Spontaneous	Superficial	*Variable*	Directly connected	*Variable*	*Variable*	Short
Intentional	*Variable*	*Variable*	*Variable*	Teacher controlled	Little flexibility	*Variable*
One-off	Superficial	Disconnected	*Variable*	Teacher controlled	Little flexibility	*Variable*
Sustained	Deepens	Connected	*Variable*	Shared control	*Variable*	Several back-and-forth exchanges
Reactive	Constrains	*Variable*	Directly connected	Teacher controlled	No flexibility	Short
Responsive	Deepens	*Variable*	Directly connected	Shared control	Highly flexible	Several back-and-forth exchanges

We locate these instructional interactions on continua to capture the complex and overlapping nature of instructional types.

Spontaneous to Intentional Instructional Interactions



As instructional interactions move from Spontaneous to Intentional, they become more planned by the teacher, with opportunities for deeper engagement with content. While they start to lose some of the connectedness to children's in-the-moment interests, teachers can

more purposefully attend to important learning outcomes and build connections across content areas.

Spontaneous interactions—defined as emergent teaching moments that are as brief as a question or comment that connects to children's in-the-moment actions, interests, or words—capitalize on children's in-the-moment interests and activities, during short interactions. Teachers employed a spontaneous pedagogical style in nearly 50% of mathematics and literacy learning interactions, making it the most frequently used instructional type for both content areas. While spontaneous instructional interactions can have a child-centered quality, most of the mathematics and literacy learning opportunities focused on teachers' goals of addressing discreet math concepts. For example, there were instances where teachers do not engage the children in a discussion around their activities, but insert their instructional goals related to mathematics and literacy concepts. While teachers have successfully embedded a skills assessment opportunity into the interaction, there appears to be a deepening of children's engagement with the concepts or their engagement with the materials.

> *The teacher moves to be with the children at the tables and rug. She sees a child engaged with new materials (a set of acorns and wooden numbers) and says, "What's going on at this table?*
>
> *Teacher: How many acorns are on that train?*
> *Child: (curious about the child with something from home) What does she have?*
> *Teacher: We have so many things in the classroom so it's good to leave some of this at home.*
>
> *[Child] is going to put that in her backpack.*
> *The teacher continues to sit with the child as she begins to count again.*
> *Teacher: you sure about that? Let's try again.*
> *The child counts again as the teacher watches.*
> *T: That's it!*

This exchange demonstrates qualities of spontaneous instructional interactions. It is a short exchange that capitalizes on a child's interests in-the-moment to achieve an educational aim brought to the situation by the teacher

Intentional instructional interactions, defined as pre-planned content goals and activity outcomes, were the next most common type of instructional interaction. Intentional instruction often attempts to redirect rather that capitalize on children's interests. Teachers tended to rely more on intentional interactions to support mathematics teaching and learning than literacy. During intentional interactions, it was observed that teachers did not waiver from their pre-planned content goals for an interaction or activity. For mathematics this looked like a teacher strategically facilitating a game around numeral recognition to sustain children's interest in the game by acknowledging feelings of frustration with losing, allowing for freedom of movement, and suggesting children play independently at another time. For literacy this looked like a teacher interacting with students as they completed a journal entry

on a topic or letter of their choosing, attending to their writing, phonemic awareness, and letter knowledge while also encouraging their engagement with the activity. The following field note is an example of an intentional instructional interaction:

> *Teacher asks each child which shape they would like for the body of their penguin. One girl points to an oval. Teacher asks what it is called.*
>
> *Student: "circle?"*
>
> *Teacher: "Close. It's not a circle. This one is a circle (she points to the cut-out circle)" Giving a hint, Teacher says: "It's an /o)…"*
>
> *Student: "Oval!" Teacher: "Right, it's an oval."*
>
> *Teacher moves kids through the steps of the project, telling them what comes next and offering a constrained choice (shape and color).*
>
> *Student: Now what do we do?*
>
> *Teacher: Did you glue it down?*
>
> *Student: Yes*
>
> *Teacher: (moving on to the smaller, matching white shapes that they are supposed to glue on top of the black shape): Ok now we'll put the feathers on.*
>
> *One boy starts to glue his white "feathers" circle next to the penguin.*
>
> *Teacher corrects him: "Those are supposed to go inside." She reaches over to point at his paper: "Inside, inside. That's where it goes."*

This interaction demonstrates the qualities of intentional instructional interactions. Throughout the back-and-forth with students the teacher maintains her focus on the outcomes that she has in mind for this activity. There is little flexibility as the teacher's goals are prioritized.

One-off to Sustained Instructional Interactions

One-off *Sustained*

As instructional interactions move from One-off to Sustained, they become increasingly connected to classroom learning and experiences. The skills-focused one-off interactions that are typically short and contained start to open up to allow for learning to be integrated across parts of the day and content areas.

4K teachers use one-off instructional interactions, defined as disconnected interactions from the in-the-moment learning and activities in the classroom and contain brief opportunities to engage with content. One-off instructional interactions that included mathematics and literacy concepts largely unfolded through classroom routines and short interactions during transitions. These interactions all tended to be short, self-contained, and teacher-driven, though children seemed to take pleasure in many of them. We often observed these interactions during classroom routines (e.g., singing songs, identifying the date on a calendar)

and transitions (e.g., dismissing children from the rug by calling out the letter the child was sitting on). The following field note is an example of a one-off instructional interaction:

> *The teacher turns on an alphabet song on a CD player. She holds up flash cards with uppercase and lowercase letters written on them as they come up in the song. The children sing along with the teacher and the teacher encourages the boy who is sitting next to her to participate. She leans close to him and quietly asks him to sing louder. The song involves saying the letters and their sounds. The children are engaged in the song, but sometimes talk among themselves. The CD skips and the song turns off. The teacher and children seem disappointed. The teacher asks the children if they can continue singing without the recorded song. They agree, and the class resumes singing the letters and the letter sounds along with the teacher. The teacher thanks the class for singing.*

This excerpt highlights qualities of one-off instructional interactions. The teacher and children are focused on the discreet goals of the activity, which have been determined by the teacher and appear to be familiar to the students. There is a sense that this activity was designed to support students with a particular skill because it stands apart from other classroom activities.

Sustained instructional interactions—in which children have ample opportunity to engage with content, as supported by a variety of interactions and activities in the classroom—were the least frequent across math and literacy teaching and learning. As previously discussed, the nature of our data collection limited our capacity to capture the ways mathematics or literacy content carry across different parts of the day or connects to other content. When teachers implemented sustained instructional interactions, they made content connections clear for students, purposefully inviting them to continue to explore ideas. For instance, one teacher described to the whole class the different post-card writing templates that students could use during their choice time. As part of her interaction with students she asked questions about who they could write to, and how they could deliver their mail in the classroom, directly referencing the mailroom set up in the dramatic play area. The following field note is an example of a sustained instructional interaction:

> *The teacher tells the children that there is one joke left in the book. The children make comments about the child's name and say that it is someone they know and that they know another child with the same name. One of the children who is sitting next to the teacher says he knows the joke, so the teacher asks him to read it with her. She angles the book so that he can read the joke on the page. The teacher puts the book away and tells the children it is almost time for free play. The children continue to tell jokes to each other, and the teacher reminds a boy to start a joke with "knock-knock." She tells the children that they can tell and write jokes during free choice. The teacher then tells one of the children that he can tell a joke when he comes into the classroom in the morning each day. This is the same white boy who she asked to tell a joke at the beginning of snack time. She asks the children questions about their jokes and makes comments on them.*

This excerpt from the data displays qualities of sustained instructional interactions. The teacher takes the opportunity at the end of reading the book to invite children to continue to engage with the content of during other parts of the day. There is an indication that the children and teacher could revisit the idea of creating, writing, and telling jokes, thus potentially deepening their engagement with this content.

Reactive to Responsive Instructional Interactions

As instructional interactions move from Reactive and Responsive, they become more focused on children's intentions as they interact with materials, each other, and the teacher. Rather than constraining children's choices based on the teacher's expectations, shifting toward more responsive interactions means teachers are flexible and looking to share control over where instruction goes with children.

4K teachers use reactive instructional interactions—defined as short exchanges, dominated by the teacher's perspective on children's in-the moment actions and words with attention on management and constrained choice—when addressing both math and literacy content. These interactions often focused on a single way to engage with a math or literacy concept or materials, often directing students at each step of an assigned task. The following field note is an example of a reactive instructional interaction:

> *Other children are playing with a dollhouse, building with a wooden train track, building with magnet tiles, using tools in the work shop, or playing with small cars and blocks on the carpet. Other children are in the book area looking at books and stickers in a small group. The teacher continues to walk throughout the room. The volume level is medium, with some children talking loudly and others talking quietly to themselves or to other children and the teachers. The teacher instructs a girl to turn off a noisy toy if she is not using it. Teacher: "What are you guys building?" The teacher stops to tie a boy's shoe, and he tells her about a conflict he is having. The teacher tells him to share the toys with two other boys. She tells the boys to apologize to each other. The teacher then instructs the children in the workshop to keep the toys off the floor if they want the station to stay open. The teacher walks to the book area to take a sticker book away from a girl who is passing the stickers out. Teacher: "those are not yours to give away." The teacher hands the girl a different book.*

There are several elements of this excerpt that characterize reactive instructional interactions. The teacher engages with children in a directive way, responding to their actions and words entirely from her own perspective and beliefs about how children should be interacting with materials and each other. The interactions are short, and the teacher seems to expect compliance.

Responsive instructional interactions were one of the most rarely used by teachers to address mathematics and literacy content. Responsive instructional interactions build from children's interests and experiences, and in-the-moment actions and words, to deepen engagement with and connection to content. Teachers who were able blend content learning opportunities into responsive instructional interactions deepened children's engagement with and connection to content. The following field note is an example of a responsive instructional interaction:

> *T begins to read the book. It features fairly short and descriptive sentences about what mail carriers do – sort and deliver the mail. She pauses throughout the books to talk more about the pictures and texts.*
>
> *Teacher: What do we call this picture?*
> *Several children: Mail box!*
> *Child: When I was in Chicago, I saw a mailbox.*
> *Teacher: You saw a mailbox like this when you were in Chicago?*
> *Child: nodding*
> *Teacher: Did you put anything in there?*
> *Child: We didn't have anything to put in.*
> Another child*: We have the same mailbox as the starting page!*
> *Teacher: (Flips back to show that picture) Some have one like this. Some are like a big box with smaller places for the mail and you need a key to open it up. Let's see if they have the other kind of mailbox in this book. (Peeks ahead a few pages. Then begins reading again). Deliver through the (gestures at picture)*
> *Child: snow*

This excerpt of data highlights qualities of responsive instructional interactions. Throughout these series of back-and-forth exchanges with children the teacher follows and builds on the interests of the students to deepen their engagement with and connection to the content. The book is a jumping off point for a shared conversation between teacher and students.

Centers

In addition to focusing on instructional practices in mathematics and literacy, the project team has identified centers as a key component of the 4K classroom in MMSD. Centers are stations where children get to choose their activity and often get to choose how to use the materials. Centers naturally lend themselves to more spontaneous interactions between teachers and students.

4K teachers in MMSD regularly connect with their students in the moment for a spontaneous teaching moment using center materials. However, centers can also serve as a time to evoke deeper and connected learning. We saw opportunities for growth in the ways in which teachers design and deploy centers in their classrooms. Centers offer unrealized potential to implement integrated and responsive activities that evoke a deeper understanding of the curriculum. By providing opportunities for responsive instructional practices, centers could be

an opportunity for children to dive deeper into a topic that was directly taught by the teacher or explore their own interests.

Key Findings from Examining Instructional Interactions in Math and Literacy

- 4K teachers successfully incorporate literacy learning opportunities into a variety of activities across the day.
- 4K teachers leverage some intentional instructional interactions to address multiple concepts as well as authentically engage children in working toward academic outcomes.
- 4K teachers could more effectively use discussion and activities that encourage analysis and reasoning, provide opportunities for students to be creative and/or generate their own products, present activities and concepts that apply previous learning, and relate concepts to children's lives.
- Teachers could continue to strengthen their capacity to support responsive and/or sustained instructional interactions connected to math and literacy. These instructional interaction types tend to more deeply connect children to the math and literacy content and consider children's interests and activities and on-going learning in the classroom.

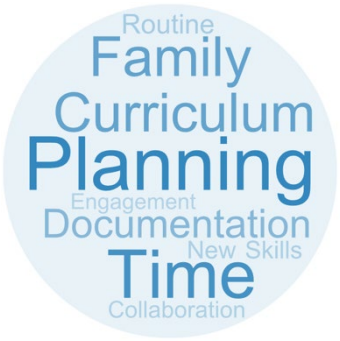
What We Learned from Talking with 4K Teachers

Strengths of 4K Teachers

Focus group participants and interviewees told us that they have a strong **ability to build relationships**, not only with students, but also with families and other educators. For example, one teacher stated: "*in my classes we really connect and feel like a family. And we really do see a lot of caring and connecting, so not just me with the students, but then the students with each other.*" Some participants noted **professional traits** as strengths, including adapting to children's needs, creating new experiences, and being flexible. One teacher in particular noted that teachers *"feel like [they are] good at just adapting to what's happening and creating some do it experiences [sic] for them based on what they are interested in."* Participants also pointed to their **ability to differentiate the curriculum** as a strength, with one teacher stating that teacher are able to "*differentiate the curriculum and meet the needs of the students while also hitting all the standards we need, and the objectives in our learning. And being able to move with what their interests are and being able to change if we need to*."

Opportunities for Growth for 4K Teachers

4K teachers shared that they could do a better job **planning curriculum** and **documenting** student achievement and growth. In particular, one teacher noted that they "*would like to do more of kind of projects and have more materials and things where students really develop those critical thinking skills"* is a way that they could improve their teaching practice. Another teacher said they do not view documentation as important because *"when it is report card time, you don't need to documentation [sic], you can just say 'this kid is here, here, here' we don't need a picture documentation of it."* Participants mentioned that **devoting time to tasks** such as planning and documentation is challenging for them given time constraints. A participating 4K teacher explained that there is "*an online system to document where they are for our standards. As much as I love the system, it is hard to get all of the documentation in that is needed in a day along with building those relationships and being present instead of just like on your computer and trying to get this documentation done. That balance is draining."* Participants did not identify documenting student achievement as an opportunity for growth, but instead expressed discontent with documentation efforts. We mention it here because teachers raised it frequently in our discussions with them. **Engaging families** in the education process and **collaborating with other educators** were other areas that 4K teachers feel that they could improve. One teacher noted that they could improve on "*parent communication. I feel like there's always a lack of time to communicate with parents, whether it's in the morning at drop off or in the afternoon at pickup."*



Resources Available to 4K Teachers

In response to a question about where they receive support for challenging situations, 4K teachers reported that they seldom **have other educators to with whom to consult**, leaving them feeling professionally isolated. One participant noted *"there's not a lot of people within the agency that, and you know, we are face to face with kids eight hours a day. So, we don't spend time talking with each other. So, I don't really know who I turn to."* When participants have the opportunity to receive support and ideas, 4K teachers **consult with other educators in the room.** A participant shared that because their assistant is *"actually a teacher, she's the person that [they] talk to the most about how to handle behavior."* **Supervisors or Coaches** are also resources to which some 4K teachers have access. One participant shared that they have a

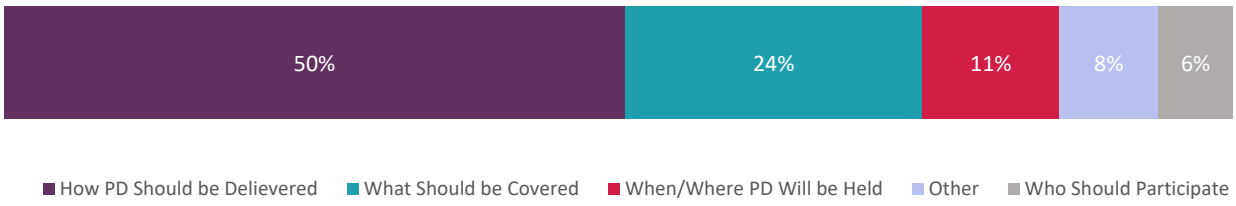
"...There's not a lot of people within the agency that, and you know, we are face to face with kids eight hours a day. So, we don't spend time talking with each other. So, I don't really know who I turn to."

coach through a community agency and that coach *"comes and does like observations"* and she *"meet[s] with [the coach] separately."*

Professional Development

We distinguished among five primary topics teachers discussed regarding professional development: (1) How PD Should be Delivered, (2) Who Should Participate, (3) When/Where PD Should be Held, (4) What Should be Covered, and (5) Other. We coded 196 segments of conversation in the Professional Development topic area; about half of those segments pertained to how PD should be delivered, followed by what should be covered (24%). Figure 1 shows the incidence of these different topics in our discussions with teachers.

Figure 1



Primary Topics Discussed in Focus Groups

PD delivery. In response to a question about how their ideal PD would be delivered, participants answered that the opportunity to **visit other classrooms** was important to them; "*Being able to kind of see what other teachers and classrooms are doing would be nice, so, I mean, just thinking some type of way to connect with other 4K teachers."* The opportunity to **work with other 4K educators** was also a common theme, with participants noting the use of a cohort system and the need to have time to collaborate with other educators as important components of PD for 4K teachers. One 4K teacher said *"[t]here is so much knowledge amongst us. But nobody gets a chance to do it together,"* signifying the importance of providing time for 4K teachers to collaborate during PD sessions.

PD content. In response to a question about what PD should cover, participants answered that in their ideal PD, having **different topics to choose from** would be the most beneficial for their practice. A 4K teacher noted that "[i]*f there are trainings for different content areas, allowing time to just kind of sit with a group of teachers would be helpful and kind of brainstorm*." Some of the topics teachers identified were academic content (e.g., demonstration lessons), day-to-day life as a teacher (e.g., managing paperwork while also preparing for lessons), instructional practices, effectively using technology, and behavior management practices. Participants also mentioned the importance of **presenting on new practices and content** during the PD. One participant mentioned that they are *"tired of the*

same thing over and over again" while another noted that it would be useful to cover *"most recent research or most recent stuff [sic]."*

"...coaches or people like that who are kind of higher up could kind of facilitate and lead and bring their ideas too."

Whom PD should involve. In response to a question about whom their ideal PD would involve, participants mentioned that the PD should involve **leadership and assistants** in order to bring their perspectives to the PD and to receive training from the PD. One participant noted that "*maybe the classroom team or the teacher of that classroom could kind of focus the discussion or if it's science or math or something, a teacher that maybe feels confident in that area could lead it or even someone, I don't know what the district has in place, but coaches or people like that who are kind of higher up could kind of facilitate and lead and bring their ideas too. I guess there's a lot of options."* Some participants also stated that **PD should be mandatory** in order to make the most impact on the 4K educational system. A 4K teacher that consistently attends structured PD sessions in the district noted: *"[the district] have to require to do some professional development. Because right now it's kind of been [an] option. And the people that could benefit from it are not going."*

When PD should be held. In response to a question about when to hold PD sessions, 4K teachers mentioned that **finding a consistent day and time** is important for their own planning: "*I know morning might not work for you as well, or vice versa, but I mean, at least if we had, like, we're meeting you know, a second Monday of every month or something like that. At least, at least, then I could plan around it."* As the public schools in the school district have Monday prep-days for their 4K teachers, 4K teachers in these settings mentioned that Mondays could work for everyone; however, others pointed out that Mondays are important to 4K teachers to prep for the week and to complete important administrative duties.

Summary

Across observations and interviews, we are struck by the range of strengths of 4K teachers working in MMSD. 4K teachers excel at **developing relationships with students**. We saw 4K teachers acting emotionally supportive in classrooms; our observations were echoed by teachers' assessments of their own practice and that of their peers. 4K teachers also have **strong classroom management skills**, speaking to their ability to proactively and adequately respond to student behavior and provide differentiation in the curriculum. Again, our observations were reinforced by teacher discussions that exemplified their own perceived strengths in managing the classroom environment.

4K teachers provide instruction through a variety of interactions with students. The most frequent type of instructional interaction is spontaneous. While spontaneous interactions offer opportunities to extend the learning students engage in, **4K teachers should capitalize on the many opportunities they have to implement responsive instructional practices.** Additionally, **4K teachers can continue to develop their skills in providing feedback to students** that not only engages students in analysis of their own answers but also extends the learning stemming from the curriculum. Lastly, **4K teachers should optimize the time they spend with students** by continuously engaging in the curriculum with students during classroom routines and transitions. This is all aligned with what some teachers expressed in the focus groups; some teachers mentioned that receiving professional development in instructional practices and how to make lessons more natural and interactive is a desire of theirs.

Key Recommendations

- Develop 4K teacher sensitivity to students' academic needs as well as foster their skills in encouraging and expanding student engagement in the classroom.
- Develop 4K teachers' feedback so that it furthers student analysis and problem-solving. Asking guided questions, helping students identify patterns, and providing reinforcement for appropriate use of problem-solving strategies are ways in which 4K teachers can deepen their feedback provided tobox students.
- Demonstrate ways in which teachers can extend their language use in the classroom in order to extend and develop student language use.
- Demonstrate ways in which 4K teachers could more effectively use discussion and activities that encourage analysis and reasoning, provide opportunities for students to be creative and/or generate their own products, present activities and concepts that apply previous learning, and relate concepts to children's lives.
- Strengthen 4K teacher capacity to support responsive and/or sustained instructional interactions connected to math and literacy.

Works Cited

Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). Classroom assessment scoring system (CLASS) manual, pre-K. Baltimore, MD: Paul H. Brookes Publishing Company.

Appendix A: Semi-Structured Observation Protocol

Paired Observation

TeacherObserver

Start TimeEnd time

Number of AdultsNumber of Children

Time	Content	Format	Observation
	SNAPSHOT		
Time	Content	Format	Observation

Content:**A** Arts; **FM** Fine Motor; **GM** Gross Motor; **L** Literacy; **LA** Language Arts; **M** Math; **MT** Meeting; **MIX** Mixed Content; **N** None; **OL** Oral Language; **R** Reading; **SC** Science; **SEL** Social Emotional Development; **SS** Social Studies

Format:**WG** Whole Group; **WGT** Whole Group Teacher; **SGT** Small Group with Teacher; **SG** Small Group; **SGTC** Small Group Teacher Center, **SGC** Small Group Center, **Ind** Individual; **C**enters; **TRN** Transition; **TRNI** Transition with Instruction, **M**eal, **Out**, **B**athroom

Appendix B: Focus Group Protocol

Enhancing the Quality of Instruction in Four-Year-Old Kindergarten
Focus Group Protocol

Introduction

Hi everyone, my name is [introduce researcher(s)]. I work with the Madison Education Partnership, a research-practice partnership between MMSD and the University of Wisconsin-Madison. Thank you for letting me speak with you about the 4K program.

MEP is collaborating with MMSD to learn about the professional development needs of 4K teachers in both school and ECE sites. We want to understand the opportunities and obstacles staff see for improving the instruction in 4K, including support for setting up and maintaining engaging classroom environments, pedagogical strategies and formative assessment. We'd really like to draw on your expertise to learn more about the kinds of professional development opportunities you think would most help support your practice and ongoing improvement.

Our goal is to capture as much of what you say as possible, so we will be audio recording and transcribing our conversation. We will do everything we can to keep our conversation confidential. We will use pseudonyms in place of names for individuals and sites on the transcriptions. We will keep the recordings on a secure server at the Wisconsin Center for Education Research.

We'll ask you a set of questions about your classroom practices, your thoughts on the MMSD 4K program, and what you want from professional development. We'll leave some time at the end of our discussion for you to tell us about anything else you think we need to know to design a strong set of professional development activities. Our conversation will last about an hour. You are welcome to stop at any time if you'd like.

Do you have any questions before we get started?

Introductory questions (5-10 min)

1. Let's do introductions first. Please tell us your name, where you work, and how long you have been teaching 4K, and one word that describes what inspires you about teaching 4K. -*Facilitator asks each person to explain their word briefly with a "Tell me more… " style prompt"*-

Your Classroom – Strengths, Opportunities for Growth, and How You Learn (20-25 min)

We want to spend some time with you reflecting on your classroom practice. I'm first going to ask you to think individually for a moment, jotting a few ideas down on the paper in front of you. Then, I will ask you to share your thoughts with the group.

2. Let's think more about where you feel most confident as a teacher.

a. What do you feel are your strengths as a classroom teacher? What are some of the things happening in your classroom that you are proud of?

3. Now let's think about your opportunities for growth as an educator.
    a. What are some areas you would like to improve?
4. When you want to try something new, confront a challenge, or just get better at your practice, where do you go for support and ideas?

Professional Development Wishes and Wants (20-25 min)

Now we need your help thinking about how to best structure a great professional development experience for 4K teachers here in Madison. This is the time to dream big and imagine what you would want – both in content and structure – to help you become the best teacher you can be. These ideas will help us create professional development driven by what we have seen in classrooms and what you have told us you want.

We will again take one minute to brainstorm individually, then we will share out and discuss together.

5. Imagine that you could get your wish list for high quality, professional development designed to enhance instructional quality. What would be on that list?
    a. Are there specific content areas that it would cover?
    b. Are there specific ways that PD would be set up or delivered?

If time allows - It's often helpful for teachers to work with colleagues to improve practice *together*. Research has shown that these professional groups work best when they are carefully organized, relevant to participants and challenging so teachers don't "learn" what they already know.

6. Can you imagine a learning group that would help you continue to grow professionally?
    a. How would it be organized?
    b. What would the focus be?
    c. Who would facilitate?

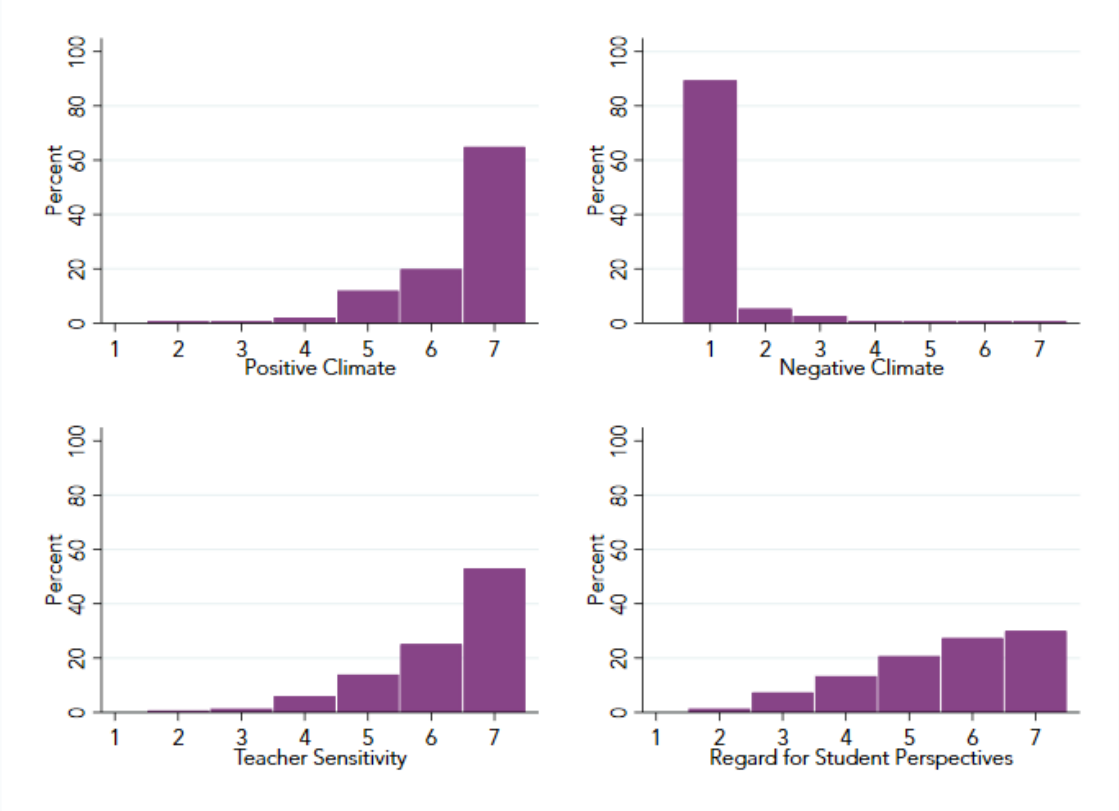
Other Comments (10 min)

7. Is there anything else you want us to know that we have not asked about yet?

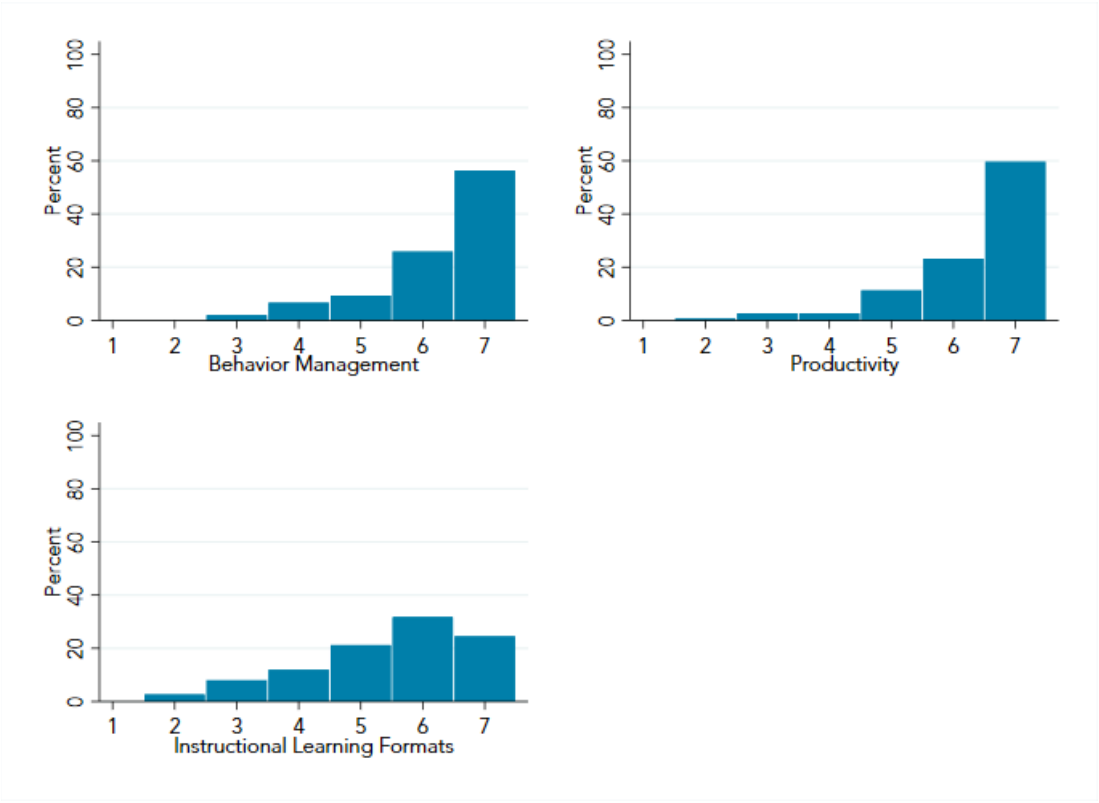
Thank you so much for your insights and ideas today. We really appreciate your candor and excitement for the work. MEP will be working this spring to speak with more teachers like you to find the themes across the district. We will then be using this data, along with our classroom observations this fall, to bring together a group of teachers and researchers who will design a professional development experience to pilot this fall. If you are interested in participating in this project – either on the planning team or in the 2019-20 professional development, just let us know. Thanks again and have an awesome day!

Appendix C: CLASS Domain Graphs

Emotional Support



Classroom Organization



Instructional Support