

## Online Supplement

Citation:

Rigby, J., Andrews-Larson, C., & Chen, I. (2020). Learning Opportunities for Teaching Mathematics: A longitudinal case study of school leaders' influence. *Teachers College Record*.

### Comparison of teacher expertise: Creekside + District

<i>Years of Experience</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>
Creekside	12.44	11.07	12.29
District	6.72	6.95	6.51

  

<i>IQA</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>
Creekside	2.17	1.86	2.25
District	2.28	2.07	2.27

  

<i>MKT</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>
Creekside	-0.10	-0.04	0.23
District	-0.15	-0.21	-0.20

All numbers are rounded means; IQA = Instructional Quality Assessment; MKT = Mathematics Knowledge for Teaching

### Summary of codes with descriptions and examples of each

<b>Code</b>	<b>Definition</b>	<b>Examples from the data</b>
<b>Talk about Mathematics</b>		
<i>Topic Only</i>	Discussion of mathematics is limited to statement of topic	“I taught volume this week.” “3.1 covers reflections.”
<i>Terms &amp; Procedures</i>	Discussion of mathematics focuses on specific terms or procedures to be learned	“You can... put the name and let 'em put the figure and what the formula is for it. Draw a picture of the figure and put the formula.”
<i>Concepts</i>	Discussion of the mathematics attends to an	“I had 'em do the surface area formula, and I wanted 'em to be specific not to just give me it's, “2B plus whatever it is”... But also, to tell me

	underlying concept or idea to be learned	that the base is a rectangle. So, they would use length times width for it. Because the kids, what I found with my kids is that they confused, if I gave 'em only capital B for the area of the base, they confused with formula I used because the circle can be length times width, or triangle became length times width.”
<b>Diagnostic Frame (describing the problem at hand)</b>		
<i>Helping Students Succeed on Tests</i>	Descriptions of the purpose of a mathematical activity as aimed at supporting students in performing well on a standardized assessment (e.g. state or district test)	“Cylinders will be on the [state] test.”  “The second list is math camp. And off the top of my head, I can't give you the exact count, but it's something like 295 kids that we have listed as non-discipline that could go to math camp. So, I need you to, we can only do like 180 of 'em. We have to get 115 kids off the list.”
<i>Helping Students Learn Math</i>	Descriptions of the purpose of a mathematical activity as supporting students learning (which could be conceptual or procedural)	“I did a different color for each of the shapes just so that the kids could keep track of which one was which.”
<i>Other</i>	Descriptions of problems tangentially related to teaching mathematics, such teachers providing “bell-to-bell” instruction every day	“...the bottom line is if I bring a visitor around the campus, regardless of if it's after a [standardized] test or not, they're going to expect to see teaching, and teaching kids. If you can do a makeup day, and you can have every single kid on task, and every single kid's gotta do some makeup work, then so be it. But they just need to be doing something.”
<b>Prognostic Frame (stipulating the remedy for the problem)</b>		
<i>No Prognosis Offered</i>	Often, descriptions of students' inability to successfully learn a particular idea or perform a specific task, lack of student effort, or student behavior. Solutions are outside of teachers' control.	“Because they're not gonna be able to understand and know the vocab for all these words. It's impossible.”  “They're still struggling in the subtraction integer area and it's because they're too lazy to do the work it takes to change that rule, you know, they wanna go in there and change that minus to a plus.”
<i>Cover</i>	Descriptions of which topics	“We need to teach volume.”

<i>Topics</i>	will be taught.	“It's one of our lowest. 8.11B, it's still probability. We have not covered it. 8.11C, to simulate an event. We have not covered that.”
<i>Adjust Instruction</i>	Descriptions of general instructional practices	<p>“[I'm going to teach] a mini lesson over what it [dilations] is, and then, gonna teach 'em how to do it on a graph.”</p> <p>“You know, on that, you just got cylinders are really easy. You just gotta teach them to find the area of the circle right off the bat.”</p>
<b>Administrator Participation</b>		
<i>Not Present</i>	No administrator present	n/a
<i>Participant</i>	Admin participates in the meeting as teachers do, sharing ideas but not explicitly guiding the conversation; shares administrative information	<p>As part of a group check-in: “I'd definitely have to say this is the first time probably in all my years of education I've been a part of a department which we are ahead of the game. And I mean, ahead of the game when some, we are ahead of the game, which I really, really enjoy.”</p> <p>“On Friday ...have [your benchmark data] ready so we can plug in numbers, we can look at it, briefly discuss... what we're doing and what we see, what can we do...”</p>
<i>Facilitator</i>	Admin facilitates the conversation, takes a leadership role to drive the content of the meeting (note that the admin was not always “assigned” the role of facilitator)	"In terms of content, about where, [are we] still behind where we nee-, where we want to be, or no?"