Investigating Collaborative Teacher Learning in Rural Contexts

Nicole A. Bannister and Phillip M. Wilder
nbannis@clemson.edu, pwilder@clemson.edu
Clemson University

Abstract: While research demonstrates that teachers need the resources of the professional community to learn, this issue remains critically understudied in contexts where a large geographic spread exists among teachers, as is often the case in rural communities. We explore this potential through a video-based responsive professional development model (RPD) we piloted with mathematics teachers from four rural school communities. Discussion will focus on the RPD model and our methodological approaches for this research.

Community-based reforms are a promising strategy for transformative teacher learning, with good reason. Professional learning communities have been linked with improved student achievement (Banerjee et. al, 2017; Langer, 2000), teacher collective efficacy (Voelkel & Chrispeels, 2017), collaborative learning of ambitious teaching practices (Bannister, 2015; Horn, 2005), among other indicators of growth. While research demonstrates that teachers need the resources of the professional community to learn (Bannister, 2015, 2018; Horn, 2005; Horn & Little, 2010), this issue remains critically understudied in contexts where a large geographic spread exists among grade-level disciplinary peers, as is often the case in rural school communities (Biddle & Azano, 2016). Here, we explore this potential by studying a video-based responsive professional development model we piloted with middle and secondary mathematics teachers from four rural communities.

Discussion element #1: The RPD model as a context for rural teacher learning

Following the success of a 3-year PD program that was structured around monthly video club meetings (van Es & Sherin, 2010) during the school year and content-based summer institute activities, we designed a responsive professional development model (RPD; Horn & Bannister, 2020) for and in partnership with a mathematics teacher community of middle and high school teachers from four neighboring rural districts in the United States. The RPD model prioritized opportunities for teachers to collaborate with "near peers" in discipline-based, grade-level contexts. We kept structural aspects of the program to boost durability, although we shifted away from researcher-videoed and selected clips for use in whole-group video club settings toward self-videoed and selected clips for use in small workgroups. We hoped that these changes would increase teachers' autonomy, opportunities to discuss their classrooms with peers, comfort and safety within these discussions, and risk-taking with their instructional practices. The process for the RPD model emerged as follows:

(1) *Organizing for inquiry:* Each group chose a "spotlight teacher" for the next session and a target mathematical teaching practice (MTP) that they wanted to try over the next month. Each teacher agreed to take at least one turn as spotlight teacher, with encouragement to evenly distribute the number of turns.

(2) *Documenting practice*: Spotlight teachers video recorded their lessons, then selected a brief clip to share with their group. Spotlight teachers prepared for the next session by reflecting on the focal MTP and potential student impact. The others tried the MTP and made reflective notes.

(3) *Spotlight on practice*: At the next session, spotlight teachers briefed their groups about the lesson and the attempted MTP. The spotlight teacher played the video clip for their small group—most brought a laptop for this purpose; some played the video directly from their video camera. Many shared student work samples. Teachers discussed the clips together, with the spotlight teacher having the final word.

(4) *Group goal setting*: Each group synthesized student contributions and bottlenecks across their lessons and discussed ways to use MTPs in ways that support what students need next. These ideas were documented in a reflective exit survey, which addressed choices, challenges, and student experiences.

As teacher educators, we see teacher collaboration within the professional learning community as a promising lever for improved practice. We imagine that the RPD model will provide productive fodder for participant conversations, both within and outside of rural teacher learning contexts.

Discussion element #2: Methodological approach

We combined ethnographic and case study methods in our study of collaborative teacher learning in rural contexts relative to the RPD model we piloted with middle and secondary mathematics teachers (Merriam, 1998). We

invited all mathematics teachers from four partner districts to join in. While participation was incentivized through modest stipends and video camera kits, it remained voluntary. Participation rates were consistent following RPD implementation ($n \approx 20$). We collected a variety of qualitative data over 2 years, including video/audio recordings of PD sessions, exit surveys, fieldnotes, teacher interviews, teachers' lesson videos, and related artifacts. We first analyzed the data for content over time by "consolidating, reducing, and interpreting what people have said and what the research has seen and read" (Merriam, 1998, p. 178). Next, we organized the exit survey results in a table by date and by workgroup as a strategy for looking within and across the participant and workgroup discourse patterns over time (see Table 1).

As learning scientists, we seek empirical specificity about the forms of teacher collaboration that might support transformative professional learning in rural school communities. In service of this goal, focused discussion of our methodological choices is likely to generate ideas and questions that will support the next stage of this research.

Table 1: Example of exit survey responses from one teacher in the 6th grade teacher workgroup

Feb 2017	*Attempted MTP*	*Challenges*	*Student Impact*	*What Ss Need Next*
Teacher A [Spotlight Teacher] **(6th Grade Group)**	The MTP was to elicit and use evidence of student thinking. I consider this a substantive need in improving my teaching practice. I need to examine evidence of student learning as well as have my student examine evidence of their own learning. In the practice students were to work collaboratively on specific questions regarding triangles and …determine joint solutions for each set of questions. Students then selected an "expert"…to facilitate the learning process among a new group of students. Students then rotated to different stations with a new set of assessments.	The practice went well. The students were well engaged and attempted to facilitate each other's learning.	Student communication was exceptional, and I was extremely pleased to see the event at which they attempted to solve each problem. I was also very pleased to see students who had not previously shined take on expert roles and develop their confidence in their learning.	Oh I so love the idea to use the video to facilitate not only my understanding of student thinking but my students understanding of their thinking and the process by which they work collaboratively.

References

Banerjee, N., Stearns, E., Moller, S., & Mickelson, R. A. (2017). Teacher job satisfaction and student achievement: The roles of teacher professional community and teacher collaboration in schools. *American Journal of Education, 123*(2), 203-241.

Bannister, N. (2015). Reframing practice: Teacher learning through interactions in a collaborative group. *Journal of the Learning Sciences, 24*(3), 347-372.

Bannister, N. (2018). Theorizing collaborative mathematics teacher learning in communities of practice. *Journal for Research in Mathematics Education, 49*(2). 125-139.

Biddle, C., & Azano, A. P. (2016). Constructing and reconstructing the "rural school problem" a century of rural education research. *Review of Research in Education, 40*(1), 298-325.

Horn, I. S. (2005). Learning on the job: A situated account of teacher learning in high school mathematics departments. *Cognition and Instruction, 23*(2), 207–236.

Horn, I. S. & Bannister, N. (2020, February). Interactionist perspectives on mathematics teachers' collaborative learning: implications for intervention design. In H. Borko & D. Potari (Eds.), *ICMI Study 25: Teachers of mathematics working and learning in collaborative groups* (pp.126-133). Lisbon, Portugal.

Horn, I. S., & Little, J. W. (2010). Attending to problems of practice: Routines and resources for professional learning in teachers' workplace interactions. *American Educational Research Journal, 47*(1), 181–217.

Langer, J. A. (2000). Excellence in English in middle and high school: How teachers' professional lives support student achievement. *American Educational Research Journal, 37*(2), 397–439.

Little, J. W. (2002). Locating learning in teachers' communities of practice: Opening up problems of analysis in records of everyday work. *Teaching and Teacher Education, 18*(8), 917-946.

Merriam, S. (1998). *Qualitative research and case study applications in education*. Jossey-Bass.

van Es, E. A., & Sherin, M. G. (2010). The influence of video clubs on teachers' thinking and practice. *Journal of Mathematics Teacher Education, 13*(2), 155-176.

Voelkel Jr, R. H., & Chrispeels, J. H. (2017). Understanding the link between professional learning communities and teacher collective efficacy. *School Effectiveness and School Improvement, 28*(4), 505-526.

Acknowledgments

This work was supported by the South Carolina Commission on Higher Education and the U.S. Department of Education under the auspices of the Improving Teacher Quality Higher Education Grant Program.