Developing Teacher Leaders Through Video Analysis

Sharing today:
Stephanie Baker, Retired Deputy Superintendent, Pomona Unified School District
Claudette Pantney, Teacher Leader, Pomona Unified School District
Robyn Stankiewicz, Teacher Leader, Minnesota Charter School
Nicole Wickler, CEMAST Research Director, California State Polytechnic University, Pomona

Which picture best reflects your thoughts, questions or experiences as it relates to teacher leadership and video analysis? Which depicts your expectations, needs, interests and/or desired outcomes for this session?

Goal for Today’s Session
- Explore how Teacher Leaders support colleagues in deepening their understanding and pedagogy of science ideas through video-based analysis of practice.
Today's Agenda

- Understand Context of the RESPeCT Professional Development Program
- Review Teacher and Student Science Learning Results
- Engage in Video Analysis Protocol Experiences with Teacher Leaders
- Explore Tools/Protocols to Facilitate Conversations About Student Learning
- Summary and Reflections

RESPeCT Norms for Working Together

The Basics:
1. Stay for the duration
2. Remain attentive, thoughtful, and respectful
3. Eliminate interruptions (turn off cell phones, email)
4. Make room for participation from all (monitor your floor time)

The Heart of Lesson Analysis:
5. Keep the goal in mind: We are analyzing teaching to improve student learning
6. Share your ideas, uncertainties, confusions, disagreements, questions—open up time so this can happen!
7. Expect and ask questions to deepen everyone’s learning—honor needs!

Science Teachers Learning from Lesson Analysis (STeLLA)

- A year-long video-based analysis-of-practice professional development program
STeLLA Conceptual Framework

Student Thinking

Science Content Storyline

8 teaching strategies that reveal, support, and challenge student thinking

10 teaching strategies to help students connect ideas and evidence to construct coherent understandings

Teacher Learning Experiences: Lesson Video Analysis

Teacher Learning Experiences: Science Content Deepening in Three Contexts
STeLLA Professional Development (PD) Program Structure

- Two-week Summer Institute
- Monthly Academic Year Study Group Meetings
- Teachers meet in small study groups with a PD Leader

One Year
(88.5 hours of PD)

Reinvigorating Elementary Science through Partnerships with California Teachers (RESPeCT)

- Enact high quality, rigorous, video-based analysis-of-practice professional development
- Develop Teacher Leaders for long-term sustainability
- Engage university science and math faculty to learn more about Title 1, K-6 context

Teacher Leader Development

- Year 1: Participate in PD
- Year 2: Learn to Lead PD
- Year 3: Co-Lead the PD
Research Question 1: Teacher Learning

How does teacher science learning compare when participants received:
- STELLA PD from experienced PD leaders,
- STELLA PD from Teacher Leaders,
- or “Business as Usual” PD from the District for the comparison group?

Effect on Teachers’ Science Learning (End of PD Program)

Pretest and Posttest (one year later) means for teacher leaders (TL), peers (PT), and comparison teachers (CT).

Error bars = +/- 1 standard error.

Research Question 2: Student Learning

- How did students of Teacher Leaders, Peer Teachers, and Comparison Group Teachers perform?
Effect on Students' Science Learning (Grades 1-6, End of PD Program)

- EFFECT SIZE (vs Comparison) ~0.8

Research Question 3: Teacher Learning Over Time

- What are the differences in mean science scores (percent correct) for teacher leaders in their first, second, and third years in the program compared to the scores of comparison teachers?

Effect on Teacher learning of content over time (End of PD Program)

- ES = 1.18 (0.82 adj) 1.31 (0.95 adj) 1.36 (1.00 adj)

Pretest and posttest means for teacher leaders and comparison teachers. Error bars = +/- 1 standard error.
Student Population Demographics
- 81% Free and Reduced Lunch
- 85% Hispanic, 5% African-American, 4% White, 4% Asian
- 91% STEM Minoritized students
- 49.4% Female
- 30% English Learners

Research Question 4: Student Learning Over Time
- What are the differences in pre-post science content scores for students of Teacher Leaders across the 3-year period?

Effect on students’ science learning (Grades 2-6, End of program)

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean Gains (Pre to Post Spring)</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>~18</td>
<td>**</td>
</tr>
<tr>
<td>Year 2</td>
<td>~20</td>
<td>~**</td>
</tr>
<tr>
<td>Year 3</td>
<td>~25</td>
<td>~0.20</td>
</tr>
</tbody>
</table>

CT (Year 3) Year 1 (A) Year 2 (B) Year 3 (C)
Summary of Results

In a Title 1 school district:

- Teacher Leaders and their students grew considerably in science content knowledge.
- Peer Teachers, trained by Teacher Leaders, showed very similar patterns of growth in science learning.
- Students of Peer Teachers showed similar growth as students of Teacher Leaders.
- Gains in Teacher Leaders students’ learning were also sustained over the 3-year period.

These findings support the claims that

- Teacher Leaders taught science content well to their peers.
- The Teacher Leader development program had a substantial impact on teacher and student understanding of NGSS-related science content.

Analysis of Practice

- Observe videos of Kindergarten and Fifth Grade classroom teaching and learning
- Use the Lesson Analysis Protocol to analyze practice and reveal student thinking.
RESPeCT Video Analysis Process

- Identify
  - What STeLLA strategies was the teacher using?

- Analyze
  - What student thinking was made visible (or not)?
  - How did the use of the STeLLA strategy impact student’s thinking?

- Reflect
  - What did you learn from identifying and analyzing?

Tools and Protocols

- To engage in analysis-of-practice we will use the framework (with supporting details for strategies 1 & 2), transcripts and a Lesson Analysis Protocol (HOS).

Video Viewing Basics

- Viewing Basic #1: Look past the trivial, the little things that “but” you.

- Viewing Basic #2: Avoid the “this doesn’t look like my classroom” trap.

- Viewing Basic #3: Avoid making snap judgements about the teaching or learning in the classroom you are viewing.
Our first video analysis clip context!

• 5th grade classroom working on a Water Cycle unit – Lesson 2b
• In the previous lesson students learned that water undergoes changes we can observe, and it sometimes seems to disappear, such as when water boils away from the outside of a beaker. But the water still exits and is changing state from a liquid to a gas called water vapor that we can’t see.
• In this lesson students explore if gaseous water vapor can reappear as liquid water, and if so under what conditions? To answer these questions, we observed liquid water appear on the outside of a cup of water with ice, but not on the outside of a cup of water at room temperature. We’re working to explain where the liquid water came from and considering different claims and the evidence that does or does not support them.

IDENTIFY Elicit and Probe Questions

• Watch the video for examples
• Individually, mark on transcript: E (elicit) and P (probe)

Remember:
• Not all questions will fall into these two categories
• Elicit questions start a conversation and ask for student ideas without expecting right answers
• Probe questions try to figure out what a student means
• Probe questions can be a paraphrasing of a student’s idea

ANALYZE Student Thinking

Review the transcript, develop a claim, supported by evidence from the transcript, about student thinking and ideas that were revealed

What do students seem to understand or struggle to understand about condensation?

Were there places you wished the teacher had probed more into student’s ideas/thinking?

How does the use of the identified strategies make student thinking visible?
Reflect on your first video analysis process!

- What was easy for you?
- What was challenging for you?
- Let’s try again!

Tools and Protocols

- Please make sure you have the second transcript and Lesson Analysis Protocol to engage in analysis-of-practice (Hos).

Learning Goals for Today

- Context: Kindergarten classroom working on a plants and animals unit
  - Students began by observing a terrarium and identifying living and nonliving things. Then they grouped the living things as plants or animals. They brainstormed ideas about what plants and animals need to live and grow, and where those things come from (the environment).
  - In the last lesson students learned lions and praying mantises need to get food, water and air to live and grow.
  - Today students explore whether ladybugs and earthworms need the same things from their environment to live and grow.
IDENTIFY Elicit and Probe Questions

- Watch the video for examples
- Individually, mark on transcript: E (elicit) and P (probe)
  - Mark places you would like to know more about student thinking with MO (missed opportunity)

Remember:
- Not all questions will fall into these two categories
- Elicit questions start a conversation and ask for student ideas without expecting right answers
- Probe questions try to figure out what a student means
- Probe questions can be a paraphrasing of a student’s idea

ANALYZE Student Thinking

Review the transcript, develop a claim, supported by evidence from the transcript, about student thinking and ideas that were revealed.

What do students seem to understand or struggle to understand about what plants and animals need?

Were there places you wished the teacher had probed more into student’s ideas/thinking?

How does the use of the identified strategies make student thinking visible?

Reflect: Implications for teacher learning

- How does the lesson analysis process help teachers
  - Deepen their science content knowledge
  - Improve their ability to be analytical about science teaching and learning, and
  - Improve their science teaching practice?
Benefits and Challenges of Video-based Lesson Analysis

- Now that you have tried video analysis, what have you learned? What are your aha’s?
- Based on what you felt at the start of this session, how have your feelings about video analysis changed?
- To what extent are the norms important to this process?

Teacher Agency through Video-based Analysis of Practice

- Observe teacher and student moves during lesson and how/when students are engaged
- Determine the extent to which challenge and probing questions are asked during instruction
- Learn from missed instructional opportunities
- Calibrate use and impact of teaching and learning among peers
- Expand use of STeLLA strategies beyond science instruction into other curriculum
- Gain confidence as teachers experience continued professional growth

Identifying and Overcoming Implementation Challenges

- Time
- Access to effective equipment
- Transcribing lessons
- Teacher openness and vulnerability; trust level
- Managing children’s behavior in front of a camera
- Others?
Reflection and Session Take-Aways

Padlet Link: 
https://padlet.com/homebake52/dlkqafhympn

Questions? Comments?

THANK YOU!

- Link to Materials: https://www.cpp.edu/~respect/resources/index.shtml

- Contact Info:
  - Stephanie Baker: stephaniebaker52@gmail.com
  - Claudette Pantney: claudette.pantney@pusd.org
  - Robyn Stankiewicz: sevenhillsyr@gmail.com
  - Nicole I. Z. Wickler: nizwickler@cpp.edu
Take our 3 minute survey!

kickup.co/2019LF

Session ID: 144S

NOTE: Session ID should be in all CAPS and is case-sensitive.