Debriefing Conversations Following Learning Walks Provide Insights into Noticing Effective Mathematics Teaching Practices

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Debriefing Conversations Following Learning Walks Provide Insights into Noticing Effective Mathematics Teaching Practices

by

Morgan Sydney Blair

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The Honors College of

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Date
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Abstract

NCTM's (2014) effective mathematics teaching practices offer mathematics teachers research-based practices that support ambitious mathematics teaching. Successful implementation of these practices requires teachers to visualize how the teaching practices might be utilized in the classroom. This study leveraged learning walks as a form of peer observation for developing noticing skills regarding the teaching practice — implement tasks that promote reasoning and problem solving. Specifically, this study analyzed the topics that teachers discuss in debriefing conversations following learning walks. Findings suggest teachers tended to focus debriefing conversations about the teacher, versus the focal mathematics teaching practice. Future studies may decide to select mathematics teaching practices that are more easily observed during instruction or scheduling learning walks ahead and sharing the tasks prior to completing learning walks.

Keywords: teacher noticing, effective mathematics teaching practices, professional development
Debriefing Conversations Following Learning Walks Provide Insights into Noticing Effective Mathematics Teaching Practices

In 2014, the National Council for Teaching Mathematics (NCTM) published *Principles to Actions: Ensuring Mathematical Success for All*. In this book, NCTM identifies eight effective mathematics teaching practices that together create a framework for strengthening mathematics education and teaching. While Common Core State Standards for Mathematics (CCSSM; NGA Center & CCSSO, 2010) provides educators with rigorous and common outcomes regarding the content knowledge and mathematical practices that students need to learn at each grade level, NCTM (2014) offered educators a way to make these standards a reality for all students by summarizing eight high-leverage teaching practices that were supported by research. Successful implementation of the effective mathematics teaching practices requires teachers to be knowledgeable about the components of each practice and be able to visualize how the teaching practice might be implemented in the classroom. This requires teachers to notice when these effective mathematics teaching practices are being used, while making connections as to how they could implement them in their own practice. A learning walk is one method of peer-to-peer observation that can be employed for professional development to enhance teacher noticing skills. In this study, we explore what teachers notice regarding an effective mathematics teaching practice after participating in learning walks.

**Theoretical Framework**

This study extends the work of teacher noticing by considering the ways that teachers attend to effective mathematics teaching practices. Specifically, the study leverages learning walks as a form of peer observation for developing noticing skills regarding effective
mathematics teaching practices. The study analyzes the topics that teachers discussed in the
debriefing conversations following the learning walks. In the following sections, we discuss the
research literature on teacher noticing, effective mathematics teaching practices, and learning
walks as a form of professional development.

**Teacher Noticing**

Teacher noticing has been conceptualized in many ways. Goodwin (1994) describes
teacher noticing as a set of skills that professional teachers have that allow them to make
educational observations and conclusions in the classroom. Professional teacher noticing is
conceptualized as the teachers’ ability to attend, interpret, and respond to children’s
mathematical thinking (Jacobs, Lamb, Philipp, & Schappelle, 2011). Similar in nature, van Es
and Sherin (2002) have identified three key aspects of teachers’ noticing skills to include:
identifying important events, connecting observations to educational knowledge, and
contextually rationalizing about the events occurring in the classroom. Research suggests that
noticing skills can be developed as teachers learn and gain experience with noticing in the
classroom or through professional development opportunities (Sherin, Jacobs, Philipp, 2011; Star
& Strickland, 2008; Teuscher, Leatham, & Peterson, 2017). Experienced teachers with better
noticing skills are more apt to make sense of and accurately discuss events in the classroom
(Berliner, 1988). As a result, expert teachers can better attend to and describe their students’
needs and progress than less experienced teachers.

Conversations about educational events have been collected as a means for investing
teacher noticing (Baldinger, 2017; Jacobs, 2017; Lee & Choy, 2017; van Es, 2011). In particular
van Es (2011) studied video-club meeting transcripts to explore the nature and development of
the video club group’s noticings. An analysis of these conversations resulted in the design of a
framework to notice student thinking that includes a coding scheme for identifying various levels
of teacher noticing. In this framework, van Es (2011) has described what teachers notice on a
continuum from attending to the whole classroom environment as baseline, to a focus on teacher
pedagogy, then attending to students’ mathematical thinking, and finally focusing on the
instructional strategies to support students’ mathematical thinking as extended noticing.

Much of the existing literature focuses on teacher noticing of student thinking and ways
that teachers classify their observations to support their decisions regarding their students’
learning (Jacobs et al., 2011; Philipp, Fredenberg, & Hawthorne, 2017; van Es & Sherin, 2002).
However, some more recent work has attempted to expand the field, specifically extending it
beyond noticing student thinking to considering how teachers attend and make sense of
curriculum in what Amador, Males, Earnest, and Dietiker (2017) conceptualize as curricular
noticing. Similar to the ways in which Amador et al. (2017) extend the work of teacher noticing
to curricular noticing, or noticing in curriculum, we extended teacher noticing to think about
noticing effective mathematics teaching practices. This study considers what practicing teachers
attend to during peer observations with a focal goal on one effective mathematics teaching
practice.

**Effective Mathematics Teaching Practices**

The National Governors Association for Best Practices (NGA Center) and the Council of
Chief State School Officers (CCSSO, 2010) developed Common Core State Standards for
Mathematics (CCSSM) to set an expectation of student performance; however, the NGA Center
and CCSSO did not include how teachers were supposed to help their students meet these expectations. To combat the ambiguity of the CCSSM in regard to the role of teachers, NCTM (2014) published *Principles to Actions: Ensuring Mathematical Success for All*. This publication considers the standards instituted in the CCSSM and synthesizes research-based methods for teaching mathematics into eight *Effective Mathematics Teaching Practices* for teachers to use to help all of their students reach these standards. NCTM (2014) pairs research and practice to identify eight *Effective Mathematics Teaching Practices* and five *Essential Elements* to aid teachers, administrators, and math coaches in promoting high-quality student learning in their classrooms and schools. Specifically, the eight *Effective Mathematics Teaching Practices* include:

1. Establish mathematics goals to focus learning.
2. Implement tasks that promote reasoning and problem solving.
3. Use and connect mathematical representations.
4. Facilitate meaningful mathematical discourse.
5. Pose purposeful questions.
6. Build procedural fluency from conceptual understanding.
7. Support productive struggle in learning mathematics.

NCTM has led the way in providing teachers professional development materials to support their understanding and adoption of these mathematics teaching practices. Materials have included *Principles to Actions Professional Learning Toolkit* (NCTM, [https://www.nctm.org/PtAToolkit](https://www.nctm.org/PtAToolkit)) that contains a reading reflection guide and modules.
showcasing various mathematics teaching practices in narrative and video case studies. More recently, NCTM released the Taking Action Series (Boston, Dillon, Smith, & Miller, 2017; Huinker & Bill, 2017; Smith, Steele, & Raith, 2017) which provides further elaboration of each teaching practice, and also provides teachers with two types of learning opportunities. The first are Analyzing Teaching and Learning activities, which are woven throughout the chapter. In these, the reader investigates a case and identifies the teaching practice, thus developing noticing skills connected to the mathematics teaching practices and specifically considers how these instructional decisions impact students’ mathematical learning. Then, the reader is encouraged to try implementing each practice in their own classrooms through Taking Action in Your Classroom prompts located at the end of chapter.

Learning Walks as a Form of Professional Development

Research supports the idea that professional development (PD) must be focused, high-quality, and intensive (Desimone, 2002). However, regular intensive PD is often difficult for teachers to obtain and effectively implement largely due to time constraints (NCTM, 2014). As a result, it is important to offer teachers more time efficient options for obtaining PD. One PD strategy that teachers can implement within their own time frame that can offer constructive and visible takeaways to help them improve their own instruction is engaging in peer-to-peer teacher observation. Peer-to-peer teacher observation provides opportunities for teachers to utilize the skill set within their own school building to help them improve and hone their own noticing skills. One way to implement this kind of peer observation is in the form of learning walks.

While teacher observation has been more commonly used in the form of walkthroughs or instructional rounds utilized by school administrators as a tool for evaluation, learning walks
provide an opportunity for teachers to be observed by peers in a non-evaluative setting where, ideally, both parties are benefitting from the observation by developing their own practice through noticing (Ginsberg & Murphy, 2002; Fisher & Frey, 2014; The Teaching Channel, 2018). Learning walks, as a form of teacher PD rather than as a means of teacher evaluation, typically consist of three parts: 1.) a pre-observation meeting to determine a foci for the observation and a brief introduction to the instruction being observed, 2.) a brief classroom observation, and 3.) a debriefing professional learning conversation following the observation (Institute for Learning, n.d.; Fisher & Frey, 2014). Following the debriefing conversation, the observers give feedback to the teacher they observed and make plans for their next visits.

Learning walks offer a space for teachers to practice their noticing skills, specifically focusing on a particular aspect or goal practice, in a supportive setting with their peers. Drew et al. (2017) further expand on the affordances of observations that have a practice goal for noticing, stating that they can help teachers identify the gaps that exist between “actual and desired practices” through self-assessment (Drew et al., 2017, p. 915). Since the purpose of this study was to investigate what teachers noticed about an effective mathematics teaching practice during their observations, we felt that utilizing this goal-oriented observation structure could provide information about what teachers attended to overall, but also might support their focus on the target practice. These elements that the teachers attended to would be revealed during the debriefing professional learning conversation.

Professional learning conversations are those conversations that occur between educators with a focus on improving practice or understanding (Schuck, Aubusson, & Buchanan, 2008). These conversations can be paired with classroom observation in order to reveal information
about what the teachers focus on and find important during their classroom observations, similar to how video club conversations have been used to investigate teacher noticing of student thinking (van Es & Sherin, 2002). By determining what these teachers are discussing about each other's work and practices, we can develop an understanding of how teachers are thinking and talking about what they are seeing in their observations and what they find important. Additionally, these conversations will provide us insight into how the teachers are progressing in their noticing skills, specifically regarding noticing the focal effective teaching practice in their classrooms.

This observation and discussion structure, which has also been referred to as "peer-to-peer observations," paired with professional learning conversations, serves as a form of PD for the participating teachers with the purpose of improving teachers' practice and thinking by comparing it to the practices of their peers (Hamilton, 2012; Schuck et al., 2008). Since learning walks are designed to occur consistently throughout the school year, this has the potential to fulfill the need for PD to be focused, sustained, and intensive, especially since the focus of the learning walks remain the same, while also only requiring a short time commitment from the teachers periodically to enact the learning walk. Moreover, we hypothesize that experiencing observations and conversations that stem around a central focus could improve the teachers' noticing skills and support teachers in envisioning ways they might adopt the focal effective mathematics teaching practice in their own classrooms.

**Research Questions**

Interested in learning how teachers engage with the effective mathematics teaching practices in their own practice, we implemented learning walks and suggested teachers observe
and discuss the effective mathematics teaching practice - Implement Tasks that Promote Reasoning and Problem Solving. A collection of post-observation debriefing conversations were analyzed to explore how the teachers were attending to this focal practice, noticing and discussing “Implementing Tasks that Promote Reasoning and Problem Solving.” The following research questions guided the examination of the debriefing conversations:

1. What is the foci of the debriefing conversations following a learning walk before and after a refresher session?
2. In what ways do these foci connect to the effective mathematics teaching practice “Implement tasks that promote reasoning and problem solving” (NCTM, 2014, p.17)?

Methods

This qualitative study analyzed the debriefing conversations occurring after learning walks in a suburban middle school during the 2017-2018 school year. The middle school had previously participated in a book study of Principles to Actions: Ensuring Mathematical Success for All (NCTM, 2014) during the 2015-2016 school year. The original plan was to employ learning walks to continue the momentum from the book study and encourage implementation of the effective mathematics teaching practices, however district and school initiatives along with turn-over in mathematics specialists delayed the project by one year.

Participants

The participants were four seventh and four eighth grade mathematics teachers (N=8) who voluntarily participated in this study because they were interested in participating in peer
observations. The teachers' years of experience ranged from three to twenty-seven years. The participants were predominantly white and female.

When engaging in peer observation or learning walks, Drew et al. (2017) suggests that observers should choose one focus or goal that they will narrow in on during the observation. In an attempt to best-fit the focus of the learning walks to the teachers, the teachers were given a survey online where they rated how well they knew and could implement each effective mathematics teaching practice. The teachers also answered questions regarding which effective mathematics teaching practices they felt they were currently implementing well in their classroom, which effective mathematics teaching practice they struggled to use in their classroom, and which effective mathematics teaching practice they recommended focusing on. The survey responses, along with discussions with the district’s math specialist, led to “Implementing Tasks that Promote Reasoning and Problem Solving” (NCTM, 2014, p. 17) being chosen as the target practice for the learning walks and this study, because most of the teachers felt the least confident explaining it and implementing it in their classrooms, and the mathematics specialist felt it was a school-wide need for improvement.

Context of Study

Overall, the teachers participated in four learning walks taking place in September, October, April, and May, with September and October acting as pre-data and April and May acting as post-data following a PD session. During each learning walk session, four teachers in the same grade level completed two observations of two teachers in the other grade level. For instance, all of the seventh grade teachers observed eighth grade teacher A and then observed eighth grade teacher B in one learning walk session. Classroom observations tended to last
approximately 10 minutes. The first two learning walks offered a baseline of what teachers would notice on their own, and the last two learning walks were to see if teachers' noticing changed following a short PD session that reviewed the focal mathematics teaching practice.

During the observations, the teachers used a double-sided Praise-Observation-Wonder observation tool that was currently being used in the district. Teachers used one side of the observation sheet to document what they noticed in each of the classrooms, which kept their observations and thoughts about each classroom separate. The observation tool was adapted throughout the study to encourage observation and conversation about the target effective mathematics teaching practice by adding the target practice description to the top, as well as an area for reflection on the goal after the observation (see Appendix A).

After both observations were completed, the teachers participated in debriefing conversations where they discussed what they noticed in each of the classrooms. These conversations were recorded using an audio recorder, and both the audio recordings and copies of the teachers' observation tools were collected and stored in a secure electronic folder. The data analyzed in this study are the eight transcribed debriefing conversations, four per grade level group: two observations before the PD session and two observations after the PD session.

After the teachers completed all of the learning walks and debriefing conversations, we conducted a post-study debriefing meeting with each group of teachers (seventh and eighth) separately. During these meetings, we asked the teachers to take a survey (Appendix B) about their experience utilizing learning walks and debriefing conversations. After the teachers completed the surveys, we discussed which effective mathematics teaching practices the teachers
wanted to work towards improving in the future, as well as other comments or suggestions that teachers had about conducting learning walks and debriefing conversations in the future.

**Refresher PD Session**

During the study, between the second and third learning walks, we conducted one short PD session with each group of teachers, one with the seventh grade teachers and one with the eighth grade teachers. This session was designed to act as a refresher, offering the teachers a few reminders about the effective mathematics teaching practice as well as introducing the mathematics teaching practice to the teachers who had not been part of the book study previously. During this session, we discussed the effective mathematics teaching practice “Implement tasks that promote reasoning and problem solving” (NCTM, 2014, p. 17) and what it might look like in a classroom. The teachers participated in a sorting activity where they labeled tasks as high-level or low-level cognitive demand tasks (Smith, Stein, Arbaugh, Brown, & Mossgrove, 2004). We also discussed maintaining the cognitive demand of tasks through implementation, as well as factors associated with the decline of the cognitive demands of a task (Stein, Smith, Henningsen, & Silver, 2009).

**Data Analysis**

To explore what the teachers were discussing during their debriefing conversations, I transcribed the conversations and divided the transcriptions into idea units. Similar to van Es (2011), an idea unit consisted of any dialogue that revolved around one main topic of discussion. Changes in conversation topic were determined by noting a shift in the main focus of the conversation, often revealed in the first sentence of a new idea unit, or based on a change in pronoun used during the conversation. Descriptive coding techniques (Saldaña, 2009) were
employed to analyze the idea units, which included identifying the topic of the idea unit and sorting them into overarching categories.

The preliminary coding session for topics uncovered four major coding themes - Task, Students, Teacher, and Reflection. After compiling these four main categories, a second round of descriptive coding was performed to reveal more intricacies within each main category, and to further investigate the specific areas where the focal effective mathematics teaching practice might appear. Moreover, the Instruction subcategory under Teacher remained broad, and so a third round of descriptive coding was employed to investigate this subcategory further. These major categories and subcategories are detailed in Tables 1-4.

**Task.** Idea units coded as Task discussed the task, activity, or routine with which the students were engaging during the teachers’ observation period. The Task category consisted of four subcategories: routines, general information about the task, elements that promoted reasoning or allowed multiple entry-points, and how the task engaged the students. Task is unpacked in Table 1 below.
# Table 1

**Definitions and Examples of Coding for Each Subcategory in Task**

<table>
<thead>
<tr>
<th>Subcategory Code</th>
<th>Subcategory Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routines</strong></td>
<td>Involves activities such as Daily Checks, homework, homework grades, or other routine activities or tasks observed in the classroom.</td>
<td>“The only thing I wondered, and I didn’t write it down, was, I saw in both classes that they were checking homework and were big on like, giving grades for it. I just wonder if they even, I mean do they check it or do they just go over it and the kids grade it themselves? I saw both homeworks out on each desk, and I just didn’t know how they went about doing that. That’s the only thing I wondered.” (Teacher 8B, 1.37)</td>
</tr>
<tr>
<td><strong>General Information About Task</strong></td>
<td>Includes general information about the task such as how it looks, what it is, what topic it covers, and how it was implemented.</td>
<td>“I still have a question about the one a day. Yes, we talked about that. We wanted to know if it’s always a graph, if it’s something they do as a Do Now, or is it something you turn in for a grade? I did ask a student. They said they had not done them before…” (Teachers 7B, 7C, 7B, 1.4)</td>
</tr>
<tr>
<td><strong>Promoted Reasoning or Multiple Entry-Points</strong></td>
<td>Includes specific references to aspects of the task that promote reasoning or allow multiple entry points. Verbiage explicitly includes “promoted reasoning” or “multiple entry-points” in the context of the task.</td>
<td>“I put that I like that they had multiple ways to approach the problem, and there was not that one kid that was sitting there like “well I don’t know this method, so I’m not going to do it.” It was, you know what, let’s do what works for you, and they could at least attempt the problem…” (Teacher 8A, 3.18)</td>
</tr>
</tbody>
</table>
Engaging

Notes how the task was engaging or how it engaged students. Explicitly uses the term “engage” or “engaging.”

“I like the graphing activity because it wasn’t just the straight graphs, they were having to graph the equations and it was kind of fun, it looked like a “who-done-it” kind of thing. Because they were connecting people.

And so therefore the kids would be able, it was kind of something that would be at their interests.

And something to help them be engaged.”

(Teachers 7A, 7B, 7A, and 7D, 1.3)

**Students.** Idea units were coded as Students if the conversation involved what the students were doing or saying to each other or the teacher during the observation period. These idea units tended to use the pronoun “they” in reference to the students. The Students category was broken down into four subcategories: Discussion, Critical Thinking, Classroom Culture, and Actions.

Table 2

*Definitions and Examples of Coding for Each Subcategory in Students*

<table>
<thead>
<tr>
<th>Subcategory Code</th>
<th>Subcategory Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
<td>Includes how the students are engaging in discussion with each other as well as with the teacher.</td>
<td>“…I observed that she had the kids explain it to each other before she opened it up to full group.” (Teacher 8D, 1.24)</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>Details how the students are thinking critically about a task or questions or how they are explaining their work or thoughts.</td>
<td>“The one student asked that if she divided the fractions, if she divided both by say one half and two-fourths, if it’s still point five, would that mean that they’re equivalent. I thought that was really good from that student, and she let her figure that out on her own.” (Teacher 8C, 1.31)</td>
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</tr>
<tr>
<td>Classroom Culture</td>
<td>Includes students using “math talk,” students’ comfortability in the classroom, and routines that the students are participating in such as hand raising or talking out.</td>
<td>“I definitely like the students using the math talk, talking about isolating the variable, and instead of like, combining the w’s they said, ‘combine like terms,’ so I thought that was pretty good…” (Teacher 8C, 2.17)</td>
</tr>
<tr>
<td>Actions</td>
<td>Specific actions that the students are taking or things that they are visibly doing.</td>
<td>“I also like that the other students in the class were engaged in what they were doing. [Teacher 8A] was completely engrossed in her small group. She had the trust in her other kids that they were on task and working on what they should be working on so that she could truly dedicate, you know, her time working with those kids who needed more help with that particular topic. That was highly impressive and you could tell a lot of training had gone into that.” (Teachers 7C and 7A, 3.2)</td>
</tr>
</tbody>
</table>

**Teacher.** The Teacher category was used to code idea units that revolve around the teacher, specifically what the teacher was doing with regards to the students, the task, and the classroom. Overall this category included what the teacher was doing or saying to the students and any tools the teacher was using. The pronouns “he” or “she” which were used to single out the teacher, were used as an indicator for this coding category. The Teacher category was divided into eight subcategories: Instruction, Selecting Groups, Selecting Responses,
Questioning, Leading Discussion, Differentiation, Interacting with Students, and Implementing Tasks.

After sorting the idea units into these subcategories, the Instruction subcategory was still broad. After employing descriptive coding for the idea units in this subcategory, the themes of Tools, Actions, and Planning emerged. All of the subcategories within the Teacher category are detailed in Table 3.

Table 3

*Definitions and Examples of Coding for Each Subcategory in Teacher*

<table>
<thead>
<tr>
<th>Subcategory Code</th>
<th>Subcategory Definition</th>
<th>Sub-Subcategory Code</th>
<th>Sub-Subcategory Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction</td>
<td>Includes tools that teachers use during instruction, and instructional planning (including learning targets).</td>
<td>Tools</td>
<td>Includes tools that teachers use during instruction such as timers, guided notes, or technology.</td>
<td>&quot;...I really like that the SmartBoard had the timer on it so that the kids knew.&quot; (Teacher 8D, 2.9)</td>
</tr>
<tr>
<td>Actions</td>
<td>How the teachers are delivering their lesson and actions they take to during instruction such as walking around or explaining concepts.</td>
<td></td>
<td>&quot;...She kept having the kids to table talk where she wasn’t just the distributor of knowledge, like the kids were actually helping each other.&quot; (Teacher 8B, 1.21)</td>
<td></td>
</tr>
<tr>
<td>Planning</td>
<td>Items of discussion directly discussing planning such as task construction. Also includes discussion about learning targets and activating prior knowledge.</td>
<td>&quot;...She knew that the students were going to have questions with that homework problem and she already had that in her lesson...&quot; (Teacher 8C, 1.32)</td>
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<td></td>
</tr>
<tr>
<td>Selecting Groups</td>
<td>Questions or observations about how the teachers grouped their students.</td>
<td>&quot;I gathered that they were grouped by ability levels...&quot; (Teacher 8A, 3.21) [...I wondered about how she put her groups together...&quot; (Teacher 8D, 1.26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selecting Responses</td>
<td>Identifying how the teacher selected students or groups to present their ideas or work to their classmates.</td>
<td>&quot;...She was using popsicle sticks to keep the kids engaged.&quot; (Teacher 8C, 1.13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>Description</td>
<td>Quote</td>
<td>Reference</td>
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</tr>
<tr>
<td>Questioning</td>
<td>Questioning techniques or habits that the teachers use during instruction or task implementation. Includes funneling, wait time, probing questions, and leading questions.</td>
<td>&quot;...I do feel, even though they were talking and saying why it was right or wrong, and yes they were having a bit of conversation behind it, I felt that there was too many yes or no's, so I don't feel like there was enough open-ended questions to help with that...&quot;</td>
<td>(Teacher 8A, 3.10)</td>
<td></td>
</tr>
<tr>
<td>Leading Discussion</td>
<td>How the teacher leads discussion among students and between him/herself and his/her students or how he/she promotes student-led conversation.</td>
<td>&quot;She kind of asks around and sees if anyone else knows the answer, and then she asks students to explain their questions and explain their reasoning to kind of get up an open discussion.&quot;</td>
<td>(Teacher 8B, 1.29)</td>
<td></td>
</tr>
<tr>
<td>Differentiation</td>
<td>Different methods that the teachers used or could use to differentiate instruction.</td>
<td>&quot;...I also wondered if there were differentiated tasks that could have been done...&quot;</td>
<td>(Teacher 8A, 1.36)</td>
<td></td>
</tr>
</tbody>
</table>
Reflection. Idea units that contained talk that was introspective in nature or based on the speaker’s own experiences was coded as Reflection. Specifically, the Reflection category included topics that relate back to the speaking teacher’s own classrooms or noticings during the observation. The pronouns “I,” “me,” or “we” that indicated the speaker was included were used to support coding of this category. Descriptive coding further revealed three subcategories within the Reflection category. These three categories are outlined in Table 4 and include: Own Practice or Classroom, Study-Related Noticings, and Other.
Table 4

Definitions and Examples of Coding for Each Subcategory in Reflection

<table>
<thead>
<tr>
<th>Subcategory Code</th>
<th>Subcategory Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own Practice or Classroom</td>
<td>Includes things that they say or do in their own classroom currently and things that</td>
<td>“I think those are things that, honestly for me, there’s ways I can change it up in my own classroom...” (Teacher 8A, 2.26)</td>
</tr>
<tr>
<td></td>
<td>they would like to improve about their practice.</td>
<td></td>
</tr>
<tr>
<td>Study-Related Noticings</td>
<td>Includes conversations about what they noticed about their debriefing conversations or</td>
<td>“My wonder was, since we didn’t get to see the teacher teaching class or the kids working collaboratively, what would the task that we were asked to look for, effective teaching of math engaging students involving discussion tasks that promoted mathematical reasonings and problem solving and allow multiple entry points, I was really curious of what that would have looked like in the class...” (Teacher 8A, 2.14)</td>
</tr>
<tr>
<td></td>
<td>observations.</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Includes various discussion topics including former students and PLCs.</td>
<td>“The one lady that we watched the video of hers, she’s one of my former students, and just to see what she could do and knowing that math’s not always her strength, but that project truly was.” (Teacher 7A, 4.2)</td>
</tr>
</tbody>
</table>

In conclusion, Figure 1 summarizes the coding themes that emerged from the data by providing a visual hierarchy of the coding theme categories and subcategories.
Figure 1. A hierarchical view of the coding themes.
Results

Overall, 112 idea units were coded. Of these idea units, 65 of them occurred before the PD session and 47 of the codes occurred after the PD sessions (as seen in Table 5).

Table 5

Number of Idea Units per Foci Category

<table>
<thead>
<tr>
<th>Foci of the Debriefing Conversations</th>
<th>7th Pre-PD</th>
<th>8th Pre-PD</th>
<th>7th Post-PD</th>
<th>8th Post-PD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Student</td>
<td>3</td>
<td>11</td>
<td>2</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>Teacher</td>
<td>9</td>
<td>29</td>
<td>4</td>
<td>18</td>
<td>60</td>
</tr>
<tr>
<td>Reflection</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Sums</td>
<td>65</td>
<td>47</td>
<td></td>
<td></td>
<td>112</td>
</tr>
</tbody>
</table>

To answer the first research question, the teachers discussed topics that were coded into the Teacher category most frequently both before and after the PD session. The debriefing conversations included Teacher-coded idea units 38 times before the PD session and 22 times after the PD session, which can be seen in Table 6.

Table 6

Number of Idea Units Coded for Each Teacher Subcategory

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>7th Pre-PD</th>
<th>8th Pre-PD</th>
<th>7th Post-PD</th>
<th>8th Post-PD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction</td>
<td>5</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Selecting Groups</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Selecting Responses</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Questioning</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Leading Discussion</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>
Differentiation | 1 | 2 | 0 | 1 | 4
Interacting with Students | 0 | 2 | 0 | 1 | 3
Implementing Tasks | 0 | 1 | 3 | 4 | 8
Sums | 38 | 22 | 60

This resulted in approximately 58% of the debriefing conversations from before and approximately 47% of the debriefing conversations after the session focusing on the teacher. Additionally, the Teacher category was the most discussed topic overall, with 60 out of 112 codes, which was approximately 53% of the idea units discussed. A comparison between the four categories can be seen in Figure 2.

Table 6 displays the four Teacher subcategories with idea units tending to be situated in data in the Instruction and Questioning subcategories. Within the Instruction category, many of the idea units discussed were classified further as the subcategory Tools, which can be seen in Table 7. The teachers discussed instructional tools much more frequently before the PD session.
than after, with 8 idea units coded before and 2 idea units coded after. Conversations about instruction decreased drastically after the PD session from 15 idea units coded to 5 idea units coded. Moreover, questioning seemed to be fairly important to the teachers, with 6 idea units coded before the PD and 4 coded after.

Table 7

*Number of Idea Units Coded for Each Instruction Subcategory*

<table>
<thead>
<tr>
<th></th>
<th>7th Pre-PD</th>
<th>8th Pre-PD</th>
<th>7th Post-PD</th>
<th>8th Post-PD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Planning</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Actions</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Sums</td>
<td>15</td>
<td>5</td>
<td></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Students was the second most frequently discussed category with 24 out of 112 total idea units, as seen in Table 8. In general, the number of idea units about the students did not change much before or after the PD, with 14 idea units before and 10 after. Within this category, the teachers most frequently discussed elements related to the classroom culture. They discussed Classroom Culture-related topics 12 times out of the 24 total in the Student category. These topics seemed to be more important before the PD during the first few learning walks than after the PD since the number of idea units decreased from nine to three.

Table 8

*Number of Idea Units Coded for Each Student Subcategory*

<table>
<thead>
<tr>
<th></th>
<th>7th Pre-PD</th>
<th>8th Pre-PD</th>
<th>7th Post-PD</th>
<th>8th Post-PD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>
Additionally, as can be seen in Table 9, the teachers seemed to focus much more on the task that was being implemented before the PD session than after. Of the 14 total idea units coded into the Tasks category, 10 occurred before the PD session and only four occurred after.

### Table 9

<table>
<thead>
<tr>
<th></th>
<th>7th Pre-PD</th>
<th>8th Pre-PD</th>
<th>7th Post-PD</th>
<th>8th Post-PD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>General Info. About Task</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Promote Reasoning or Multiple Entry Points</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Engaging</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Sums</td>
<td>10</td>
<td>4</td>
<td></td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

One interesting thing that we noticed during the data analysis is that only one teacher reflected on the study and their own practice before the PD session. This teacher reflected on their practice three times. Most of the reflection that occurred was after the PD session; more specifically, approximately 79% of the reflective conversations occurred after the PD. Additionally, more of the teachers began reflecting on their own practice and other things such as past students after the PD session, which is reflected in Table 10.
Table 10

*Number of Idea Units Coded for Each Reflection Subcategory*

<table>
<thead>
<tr>
<th></th>
<th>7th Pre-PD</th>
<th>8th Pre-PD</th>
<th>7th Post-PD</th>
<th>8th Post-PD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own Practice or Classroom</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Study-Related Noticings</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Sums</td>
<td>3</td>
<td>11</td>
<td></td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

**Foci Connected to the Effective Mathematics Teaching Practice**

To address the second research question regarding the effective mathematics teaching practice “Implement tasks that promote reasoning and problem solving,” we considered the promote reasoning or Multiple Entry Points subcategory within the Task category, the Implementing Tasks subcategory of the Teacher category, and the Study-Related Noticings subcategory of the Reflection category to be the ones that most closely reflected idea units that related to this goal of observation (NCTM, 2014, p.17). There were three idea units from the debriefing conversations coded in the Promote Reasoning or Multiple Entry Points subcategory; of these three, two were before the PD session and one was after. There were eight idea units from the debriefing conversations coded into the Implementing Tasks subcategory. Only one of the eight idea units occurred before the PD session and seven occurred after. There were two idea units from the debriefing session coded into the Study-Related Noticings subcategory, both of which occurred before the PD session. Thus, thirteen out of the 112 total idea units were related to the goal of observation, specifically the effective mathematics teaching practice.
“Implement tasks that promote reasoning and problem solving,” which is approximately 12% of the idea units coded (NCTM, 2014, p. 17).

Although the Implementing Tasks subcategory is categorized as relating to the observation goal, “Implement tasks that promote reasoning and problem solving,” not all of the idea units coded into this category necessarily related to this goal of observation (NCTM, 2014, p.17). In fact, only three of the eight idea units coded discussed multiple entry points or promoting reasoning (see Table 11).

After further analysis, it was determined that three subcategories contained idea units that reflected the observation goal. These subcategories were: Promote Reasoning or Multiple Entry Points (from the category Task), Implementing Tasks (from the category Teacher), and Study-Related Noticings (from the category Reflection). Moreover, there was an increase in the number of idea units coded as being connected to the focal effective mathematics teaching practice after the PD session with five idea units before the PD to eight idea units after. This shift does not demonstrate a substantial change in the conversations being more goal-oriented.

Table 11

Number of Idea Units Aligned to the Observation Goal, which was the Effective Mathematics Teaching Practice - Implement Tasks that Promote Reasoning and Problem Solving

<table>
<thead>
<tr>
<th></th>
<th>7th Pre-PD</th>
<th>8th Pre-PD</th>
<th>7th Post-PD</th>
<th>8th Post-PD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote Reasoning or Multiple Entry Points (Task)</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Implementing Tasks (Teacher)</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Study-Related Noticings (Reflection)</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
Discussion

In the following section, we discuss how the results serve to answer our research questions and the various limitations of the study that likely had an impact on the results that were obtained.

**Debriefing Conversations Tended to Focus on Teaching**

The foci of debriefing conversations were identified using the topics of the idea units the teachers discussed during the debriefing conversation. Identification of what teachers discussed and the frequency of these idea units were used to respond to the first research question. Results indicate the debriefing conversations tended to focus on observations about what the teacher was doing in the classroom more than any other category of observation, which according to van Es’s (2011) framework to notice student thinking places the teachers’ noticing around a level 2, or just above baseline. With 60 out of 112 idea units coded as teacher, this category made up over half of the total idea units that were coded. This aligns with Roller’s (under review) study which found teaching to be the most common foci of mentoring conversations following a video teaching observation for three mentor-intern pairs. Interestingly, before the PD session, approximately 58% of the pre-PD debriefing conversations contained idea units that were coded as Teacher, whereas only approximately 47% of the post-PD debriefing conversation contained ideas units coded as Teacher. This suggests an approximate 11% decrease in the focus on the teacher and what the teacher was doing between the pre- and post-PD conversations.

Within the teacher category most idea units focused on instruction (20 total idea units out of 60 total in the teacher category) and most of these were focused on the tools that were being
used in the classroom to aid instruction (10 total idea units out of the 20 total in the instruction subcategory). However, the number of discussions about the tools being used in the classroom decreased after the first two learning walks from eight idea units to two idea units. We hypothesize that this is likely due to the fact that after the first two learning walks, the teachers had a better idea about what tools to expect their peers to be using during their observation (e.g. SmartBoard, timers, guided notes). As a result, the tools were no longer novel to them, and they did not feel the need to discuss them as frequently as in the earlier learning walks.

One thing to keep in mind when considering the decrease in idea units in each category and subcategory is the fact that the overall number of conversations before and after the professional development session decreased. As a result, it might be expected that the number of idea units in each category and subcategory would proportionally decrease if the topics stayed equally important throughout the period of the study. However, this proportionality is not maintained between pre- and post-PD debriefing conversations, which instead might indicate that elements of each category and subcategory did become less important after the PD session.

Absence of Idea Units Connected to Focal Effective Mathematics Teaching Practice

To answer the second research question, we analyzed the conversations that fell into the promote reasoning or multiple entry points subcategory (3 total idea units), the implementing tasks subcategory (8 total idea units), and the study-related noticings (3 total idea units). We found that only 14 idea units out of the 112 total number of idea units that were discussed were related to the effective mathematics teaching practice, “Implement tasks that promote reasoning and problem solving,” which is 12.5% of the total idea units (NCTM, 2014, p. 17). This indicates that the teachers rarely discussed these types of topics at all. Thus, not only were the foci of the
conversations not related to the effective mathematics teaching practices, but within the categories that are related to the focal mathematics teaching practice, there were still fewer idea units that were directly related to effective mathematics teaching practice. For example, the category Task has strong potential to contain idea units that discussed the focal mathematics teaching practice, but few idea units actually aligned with the observation goal of “Implementing tasks that promote reasoning and problem solving” (NCTM, 2014).

This might be a result of the fact that to notice the implementation of these kinds of tasks, the tasks themselves must first be shared so that teachers know what they are observing or teachers need to hover close enough to students to see the task. Because planning was not shared among all of the teachers who participated and since the observed task was not offered before the learning walk occurred, it may have been more difficult for teachers to notice actions that related to the focal mathematics teaching practice. Thus, potentially resulting in the teachers spending less time discussing these types of idea units, which were our results.

Limitations

Teacher Familiarity with Effective Mathematics Teaching Practices. Two years before the study, the district mathematics specialist had offered a voluntary book study of the National Council for Teachers of Mathematics’ book, *Principles to Actions: Ensuring Mathematical Success for All* (2014) at each secondary school. Teachers at this middle school participated, however due to turn-over and shifting positions, not all teachers had participated or read the book upon starting this study. This study was meant to act as a next step to follow the book study experience and professional development to encourage awareness and implementation of the effective mathematics teaching practices. However, in reality, it was one
of the first steps for some of the teachers who did not participate in the *Principles to Actions* book study. Because of this, the teachers were not fully knowledgeable regarding the effective mathematics teaching practice that was chosen as the goal of observation for the study.

**District Initiative.** Additionally, the district in which the teachers work had a yearly initiative focusing on a different effective mathematics teaching practice. Instead of focusing on the practice “Implement tasks that promote reasoning and problem solving,” the teachers were receiving professional development and being assessed on asking effective questions, which aligned more closely with the “Pose purposeful questions” effective mathematics teaching practice (NCTM, 2014, p. 17). As a result, the teachers likely had competing motivations between engaging in professional development for the district-wide initiative practice and the practice being focused on in the study. This might have resulted in the teachers spending less time working on improving their ability to implement high cognitive demand tasks and more time working on improving their ability to pose high quality questions.

**Study Timeline.** Another limitation of the study was the timeline of the study. Originally, we planned for the teachers to complete five learning walks: two before the professional development (September, October) and three after the professional development (December, January, February). However, because of time constraints in scheduling and other school initiatives, the teachers were only able to complete four learning walks (two before the PD and two after the PD). We conducted the professional development session in November after the first two learning walks were completed. The teachers were scheduled to do two more learning walks soon after the winter break, but because of school events, testing, and other unexpected matters, the learning walks got pushed to the end of the school year in April and
May. Because of this, there was about five months of time between the professional development session and the next learning walk. This gap of time likely meant that the professional development session had little direct effect on what the teachers were noticing in the learning walks.

**Professional Development.** Finally, the methodology of this study, which was intended as a method of professional development that teachers can implement within their PLC, is not necessarily generalizable to all schools. Because this school is within close range of a university and the university has close ties to the school district, the professional development session by a professional was possible. However, not all schools are this close to universities that are able to offer professional development opportunities. Additionally, these learning walks cannot be implemented by only one teacher. Ideally, a PLC would engage in the learning walks and debriefing conversations together, but this is not always possible when there are other initiatives that the teachers are working to achieve. As a result, this method of professional development might not be easily implemented in a similar way in other schools. Additionally, the results from this study might not be generalizable across all schools because of the influence of various initiatives and university assistance within school districts.

**Observation of Tasks.** For the teachers to discuss topics that are relevant to the goal of observation, they must have talked about the tasks that they saw being implemented during their observation. However, because tasks are difficult to observe and learn from without actually seeing them, our teachers were not able to get a good understanding of the task that they were seeing implemented. The teachers would have needed to be given the task before the observation so that they could see how it was being implemented to determine whether it was a high
cognitive demand task that was being maintained during instruction. Without this prior planning and communication, the teachers were not informed about the task before they came into the room and only learned what they could see on students' papers or what was directly discussed by the teacher. Therefore, the teachers were less likely to be able to effectively discuss topics that were related to their goal of observation.

**Future Implications**

In this section, we will detail two implications that can be used to support the use of learning walks and debriefing conversations as a form of teacher professional development.

**Choosing a Goal**

The effective mathematics teaching practice that was selected for this study was “Implement tasks that promote reasoning and problem solving” (NCTM, 2014, p. 17). In 2017, Smith, Steele, and Raith included a figure within *Taking Action: Implementing Effective Mathematics Teaching Practices: Grades 6-8* that relates each of the effective mathematics teaching practices to each other. This figure resembles the structure of a house (e.g. a triangle sitting on top of a rectangle), in which the “roof,” or triangle, of the house consists of the practices that occur during planning and that help to setup the lesson. These practices include: establish mathematics goals to focus learning, implement tasks that promote reasoning and problem solving, and build procedural fluency from conceptual understanding. The “walls” of the house, or the bottom square, are the practices that are typically most easily observed during the lesson, and that create the final practice of facilitating meaningful mathematical discourse. These four practices include: use and connect mathematical representations, pose purposeful questions, support productive struggle in learning mathematics, and elicit and use evidence of
student thinking, which make up “windows” within the walls that support teachers to investigate student thinking.

Notice that the framework marked the practice “Implement tasks that promote reasoning and problem solving” as one that occurs in planning and that cannot typically be seen within instruction, even though it does have an impact on what is typically observed in the classroom when it is being implemented. Thus, this practice was likely not the best practice to choose in order for teachers to effectively notice.

Additionally, this claim is supported by the data we collected. We know that the teachers were engaging in a district-wide initiative focusing on the effective mathematics teaching practice “Pose purposeful questions” and were receiving professional development and evaluative feedback to improve their questioning abilities (NCTM, 2014, p. 17). Our data shows that the teachers did find questioning to be an important topic to discuss, with ten idea units coded in this category out of 112 total idea units. Thus, approximately 9% of the conversations were about questioning. This is only slightly below the approximately 12% of conversations that were aligned with the observation goal effective mathematics teaching practice “Implement tasks that promote reasoning and problem solving” (NCTM, 2014, p. 17). However, questioning seemed to be a fairly substantial focus for the teachers in this study, considering that three different subcategories needed to be combined to identify the 12.5% of idea units aligned to the goal of observation, compared to only one questioning subcategory that generated 9% of the conversations.

Finally, because the goal of the observations was about the tasks that were being implemented, the observers were not able to adequately discuss the tasks since they were not
familiar with them. Most of the time, the quality of a task cannot be gauged based on an observation from the perimeter of the classroom. Often the teachers were glancing over students' shoulders or making guesses about what they thought was happening with the task. However, this kind of wondering during the debriefing conversations rarely led to a deep discussion about the task's quality or how it was maintained. In order for the conversations about this particular goal to be more on target with the effective mathematics teaching practice, the observers would likely need the task ahead of time in order to analyze its level of cognitive demand and consider which actions might maintain or decrease the task's cognitive demand (Stein et al., 2009).

Effective Communication and Planning

In order for all of the teachers participating to receive the most support and to get the largest possible benefit out of the learning walks and debriefing conversations, clear and effective lines of communication must be established. Teachers who are being observed need to receive feedback from their peers on their instruction after the observations take place. Additionally, the groups of teachers need to discuss the best time and day to come observe. We noticed in the data that the teachers observed a lot of the routine actions that take place at the beginning of the class such as attendance, bellringers, and homework checks. They were rarely able to actually see a task being implemented because they only spent about 10 minutes in each classroom. Sometimes, a task was not even being implemented on the day they visited because the classes were completing tests or test retakes. Therefore, for future work, we recommend a schedule be set up so that the observing teachers can visit on a day that a quality task is being implemented and during a time of the class during which the observers can actually see the implementation.
Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.

<table>
<thead>
<tr>
<th>Praises</th>
<th>Observations</th>
<th>Wonders</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoyed...</td>
<td>I observed...</td>
<td>I wonder...</td>
</tr>
</tbody>
</table>

**Reflection**
What connections did you notice in today's observation and the effective mathematics teaching practice at the top of this page?
Appendix B

Post Study Debriefing Meeting Survey

Name: ________________________________

Number of years you have been teaching (including this school year): _______________

Directions: Place an X in the box that best represents your current belief.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoyed participating in learning walks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning walks helped me notice effective mathematics teaching practices.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning walks helped me notice the effective mathematics teaching practice - <em>Implementing tasks that promote reasoning and problem solving.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being able to observe teachers’ classrooms was beneficial.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The observation tool was effective for guiding observations toward the effective mathematics teaching practice - <em>Implementing tasks that promote reasoning and problem solving.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The conversations following an observation were important.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The conversations following an observation were focused on the goal of noticing the effective mathematics teaching practice - <em>Implementing tasks that promote reasoning and problem solving.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning walks helped me improve my teaching practice.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would recommend learning walks to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
other teachers.

I would like to continue doing learning walks next year.

During the learning walks, we asked you to notice the effective mathematics teaching practice, *Implement tasks that promote reasoning and problem solving*.

1. Summarize what “Implement tasks that promote reasoning and problem solving” means to you.

2. Describe a couple observations that would be evidence of this effective mathematics teaching practice.

**Group Interview Questions**

1. What aspects of the learning walks worked well or did not work for you?
2. How might we improve the observation tool or other aspects of learning walks in the future?
3. What was your biggest takeaway from participating in learning walks and the debriefing conversations?
4. How did you feel your personal practice has changed, if at all, since performing the learning walks?
References


