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Participatory action research as praxis: Developing scientifically literate students through inquiry-based science instruction and guided reading

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Treating Praxis as Stance for Teacher Researchers in Grade Six Science

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Two grade six teachers, Sara and Colleen, and myself, Rhonda, a literacy coach, engaged in critical participatory action research (Kemmis & McTaggart, 2005) to inquire into our grade six students' declining performance in science. Our research questions were: How does guided reading impact students' reading practices in science? How does our critical or praxis-based approach to professional learning impact our students as collaborative learners? At the time when we became a teacher researcher team, Sara had taught grade six for a few years at the school. Colleen was an experienced grade six teacher coming from another school, and I was an Elementary Language Arts Consultant leaving the district office to be the new assistant principal and literacy coach in the school. As a literacy coach, I shared planning, teaching and assessment responsibilities for science and English language arts with Sara and Colleen. I was also a part-time doctoral student in language and literacy, so Sara and Colleen asked me to share what I was learning in my studies by meeting regularly to read and talk about research.

Sara and Colleen had primarily experienced top-down professional development in the form of large-scale sessions, where they focused on translating outside research shared in professional development sessions into classroom practices. Although they acknowledged that they were given time to reflect with colleagues, they found that too often grade level teams included resistors who were not keen to participate. We were therefore genuinely excited to develop as a critically reflective professional community devoted to highly collaborative ways of learning.

In this article, I provide an in-depth view of our experiences as a critical, developing, collaborative community. I begin by explaining our shared concern about our students' reading practices and their apathy towards science. Second, I discuss how we conducted a pilot study and uncovered insights into students' comprehension and vocabulary struggles as well as their ambivalence towards science. Third, I describe how we designed and carried out our critical action research project. Finally, I indicate how taking up praxis-based teaching and learning practices resulted in transformations of science instruction and positioned students as collaborative learners in science guided reading groups. I conclude with implications for teachers, administrators and researchers.

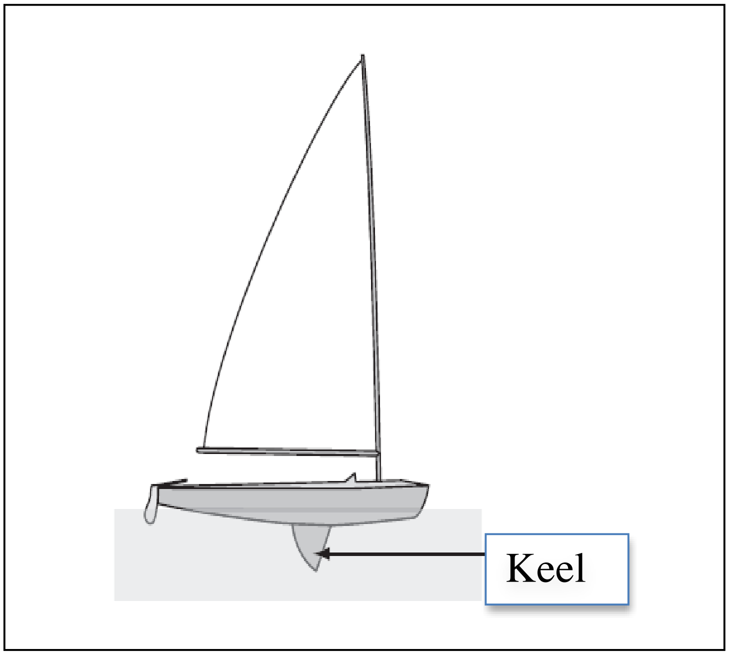
Our Concern about Students' Reading in Science

Critical participatory action research "...begins with a general idea that some kind of improvement or change is desirable. In deciding just where to begin to make improvements, a group identifies an area where members perceive a cluster of problems of mutual concern and consequence" (Kemmis & McTaggart, 1988, p.8). Our concern about grade six students' reading comprehension of science texts was prompted by our analysis of district and provincial scores for children reading expository texts. The school district took a systematic random sample (every 5th

Figure 1

Use the following diagram to answer question 10.

A Model Sailboat



10. The function of a sailboat's keel is similar to the function of an airplane's

   A. left aleron
   B. right aleron
   C. vertical stabilizer
   D. horizontal stablilizer

student) of over 1000 grades 4-6 students from 63 schools; the identified students completed a *Flynt-Cooter Classroom Reading Inventory* (2005). The *Flynt-Cooter* is a diagnostic reading assessment wherein the teacher works one-on-one with a student who silently reads a leveled passage, retells key ideas and events in the text (unprompted recall), and answers literal and inferential comprehension questions (prompted recall). The teacher then directs the student to read the passage orally and calculates the student's accuracy and self-correction rates to determine whether the leveled passage is at the student's independent, instructional or frustrational reading level. The district relied on silent reading comprehension results for this random sample of students. These results showed a steady decline in the capacity of upper elementary students to comprehend expository material at grade-level: only 37.8% of grade 4 students, 32.5% of grade five students, and 26.6% of grade six students were proficient expository readers.

We also analyzed the Grade 6 Provincial Achievement Test results for our school and found that grade 6 students had a three-year pattern of underperforming in Science, Social Studies, and Mathematics as compared to English Language Arts. Science was particularly problematic because most students inaccurately answered inferential questions such as those in Figure 1, above, which comprised two-thirds of the test.

A Pilot Study

Since we were a new grade six teaching team in the school and did not know what our current 44 grade six students would do with such questions, we designed an eight week pilot study. Our goal was to determine how students retrospectively explained their thinking when they answered such questions. Therefore, we taught two units of science and gave students test questions that were similar in difficulty to the one in Figure 1. We held individual student conferences with all students and recorded how they reasoned through questions. In the case of the question in Figure 1, some students failed to draw the analogy between the parts of an airplane and a sailboat on a visual level (had forgotten how to draw and label it) and/or on a functional level (were unsure how the parts of the plane and sailboat worked). Others misconstrued the word "function" to mean "look" and selected "vertical stabilizer" because it "looked like a sailboat keel turned upside down." Pilot study results indicated that grade six students made poor inferences because: a) they had forgotten important background information, b) they did not know a strategy to help them solve the problem, c) they misunderstood the vocabulary in the question and/or in the text used to answer the question, and d) they became overly focused on unimportant parts of the text and failed to acknowledge essential information in their background knowledge.

Sara, Colleen and I reflected on possible reasons for grade six students' relatively poor inferential reasoning and vocabulary skills in science by reviewing pilot study findings and research literature. Even though we had purchased a large number of curriculum -related science texts, we found that students did not often choose to read them during independent reading time. Stanovich and Cunningham (1993) found that there were, at minimum, highly predictive relationships among multiple variables (reading volume was one) and vocabulary development and reading ability. In addition, unlike social studies and mathematics, the science curriculum presented many terms that were specific to the particular unit of study; there was little opportunity to revisit terms throughout regular science instructional time. Stahl and Nagy (2006) claimed students' strategies (inferential and word learning) and the amount that they read (reading volume) likely shared reciprocal relationships. In other words, if students read more, they will likely improve their strategy use, and if they improve their strategy use, they will likely read more. Both aspects of students' reading practices (their strategy use and reading volume) influenced their reading comprehension. Students' disinterest in reading science texts and our limited review of key science vocabulary or strategies for inferring words meanings were likely major stumbling blocks for our students as expository readers of science. Finally, Alamsi (1995) concluded that grade four students who talked with peers about what they read improved their comprehension of texts. Sara, Colleen and I reflected upon the number of times that students had read in pairs or groups during the pilot study and concluded that collaborative reading and discussion of texts was incidental rather than planned.

At the time of our pilot study, our approach to teaching science was piecemeal and limited to 40 minute blocks. Such strict time limitations resulted in teacher-directed lectures or explanations of experiments and assignments with relatively few opportunities for students to engage in inquiry-based tasks that inspired them to want to think deeply about what they read. Students typically skimmed texts to retrieve what was needed for tasks, including experiments. We learned that many children experience a sudden drop in their reading comprehension scores at age 10, a drop referred to as the "fourth grade slump" (Chall, Jacobs, & Baldwin, 1990). The evidence of a reading slump has persisted for over twenty years in thirty-five countries (Mullis, Martin, & Gonzalez, 2003) and remains a concern in North America (Gregg & Carver Sekeres, 2006). Part of the problem is that primary children are rarely exposed to or taught how to read informational texts (Duke, 2000); yet, by grade 4, students are expected to comprehend such texts at increasingly sophisticated levels via a steady diet of traditional content-area teaching (Moss, 2005). Interestingly, one Canadian study reported that 66-80% of secondary science students completely trusted the texts that they read without considering whether or not their background knowledge contradicted the author's claims (Norris & Phillips, 1999). The implication is that students are uncertain about how to read scientific texts and about what it means to be scientifically literate, and traditional teaching practices are likely perpetuating students' uncritical reading of science texts and ambivalence towards science.

Our pilot study results confirmed much of what was highlighted as a concern in research literature. Therefore, we designed a criticalparticipatory action research study to inquire into whether and how it was possible to change our science teaching practices to improve students' experiences of science on social, emotional, and intellectual levels.

A Fourteen-Month Critical Participatory Action Research Study

The research question

The problem was clear: grade six students rarely read scientific texts where they discussed or deliberated ideas; instead, they viewed scientific texts as repositories of facts that could be accessed to get tasks done. Critical participatory action research is a collaborative process where "group members plan action together, act and observe individually or collectively, and reflect together. They reformulate more critically informed plans deliberately as the group consciously constructs its own understanding and history" (Kemmis & McTaggart, 1988, p.9). Our research questions were: How does guided reading impact students' reading practices of science texts? How does our praxis-based approach impact our students' learning of science?

Mode of inquiry

To address the problem, we designed a small group reading time twice weekly during which all students read varied science material (in addition to what they read as part of regular science instruction) and applied inferential and vocabulary learning strategies with peer and teacher discussion and support. Our aim was to provide students with more opportunities to read scientific texts, practice strategies, and talk with peers and teachers about what they read. We assessed reading comprehension through analysis of guided reading tasks and texts, and documented changes or consistencies in students' attitudes towards science learning through students' audiorecorded collaborative reading sessions and students' reflections on these sessions.

Kemmis and McTaggart (1988, 2005) highlighted that critical, participatory action research is rooted in a moral commitment to make students' lives better in a broader sense (i.e., socially, emotionally, academically). Given our worry about students' learning, achievement and apathy, we made a joint commitment to reinvigorate the grade six science program away from teacher-driven teaching and learning practices leaving more room for student agency and voice. Therefore, we re-oriented ourselves towards professional learning as *praxis*:

> Praxis is a particular kind of action. It is action that is *morally-committed and oriented and informed by traditions in the field* [emphasis in original]. It is the kind of action people are engaged in when they think about what their action will mean in the world. Praxis is what people do when they take into account all the circumstances and exigencies that confront them at a particular moment and then, taking the broadest view they can of what is best to do, they act (Kemmis & Smith, 2008, p.2)

We developed a differentiated instructional approach to science and English language arts based on our moral commitment to cultivate better conditions in the classroom for students; these would allow them to take control of their reading practices in science as well as their general science learning.

Theoretical framework

We undertook a collaborative literacy approach (guided reading) because it was the most promising way to move away from a traditional approach to teaching science. Israel, Sisk, and Collins Block's (2007) differentiated approach to reading instruction is based on the following theoretical assumptions: (1) Students co-construct knowledge when they negotiate meaning of sufficiently challenging tasks and texts (Lutz, Guthrie & Davis, 2006; Vygotsky, 1978), (2) Students rely upon mediational devices (routines, questions, modeling, feedback, lesson materials) that scaffold their learning from an inter-mental (social) to an intra-mental (internal) level of processing (Vygotsky, 1978; Wertsch, 1998); (3) Students require explicit instruction to develop inferential thinking and word learning strategies (Palinscar & Brown, 1984; Stahl

& Nagy, 2006). Small group guided reading afforded us more opportunities to read nonfiction texts with all students, which is important because (4) Students require repeated exposure to vocabulary in context (Beck, Perfetti, & McKeown, 1982), and they require opportunities to read more science texts because reading volume influences reading comprehension (Stanovich & Cunningham, 1993).

A Differentiated Approach to Science Instruction

The first step towards changing our traditional practices into praxis were to reorient our planning based on students' learning and to construct whole class, conferencing and guided reading questions and activities that drew from what the students struggled to know and do:

A proper understanding of praxis recognizes that the person who is acting is doing so in response to the practicalities and particularities of a given situation—they do the best they can do on the day, the best they could do under circumstances (Kemmis & Smith, 2008, p.5).

First, we drew from students' knowledge about science and reading by starting our science unit about air, aerodynamics and flight using an inquiry-based approach for whole class and small group instruction. Second, we organized small group instruction that required students to work in learning pairs and in highly accountable ways that emphasized high-level talk between them in guided reading groups. Third, we applied what we were reading about students' vocabulary and comprehension needs by creating lesson materials and processes that highlighted student involvement in co-constructing knowledge of science texts and in assessing and reflecting on their reading comprehension of increasingly more challenging reading materials.

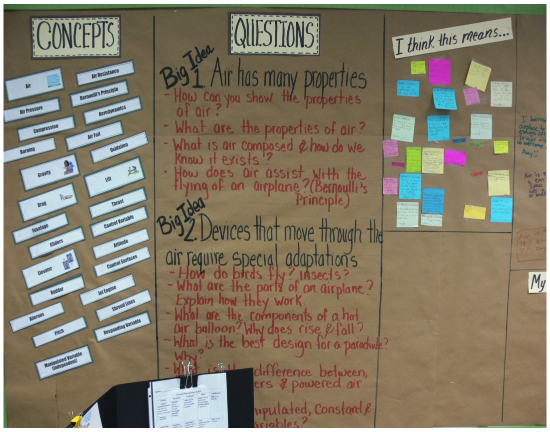
Inquiry-based instruction

We opened this unit by introducing the students to a question (e.g., How do hot air balloons fly?) posted on the bulletin board to initiate and focus small group discussions (Tomlinson & McTighe, 2006).

The question was introduced as the purpose for the task and was revisited at the end of the session. The tasks that students completed while reading prepared them to rethink their initial answers to the question. One such task was having students write a "possible sentence" (Allen, 2006) using two concepts or vocabulary words and then read and revise the sentence for accuracy and detail. Prior to reading about hot air balloons, students selected one concept or word from the bulletin board and worked with another that was provided by the teacher. They wrote a sentence in which they connected the two concepts before they began reading the text. One student selected "air pressure" and made a connection with the teacher concept, "hot air balloon." He wrote, "I think that hot air balloons require more air pressure inside the balloon to fly." The students read the text provided and discussed revisions of their possible sentences with peers at the table. When they completed their revisions, they shared their new sentences and considered how they might rethink the answer to the focus question. That same student revised his statement to read, "Heat increases the movement of air particles inside the envelope and the movement makes the air lighter and it is lighter than the air outside of it. The difference is what is called buoyancy (not air pressure), which is like lift that makes a bird fly." When students shared their revised sentences, often other students noticed misconceptions, confirmations, connections and new language terms. Sara, Colleen and I intentionally celebrated this recognition of misconceptions and encouraged students to add them to the bulletin board. Such additions were addressed at our next whole class meeting or debriefing session.

The bulletin board (see Figure 2 below) was a "mediational device" (Wertsch, 1998) because it was an object that everyone used to remind them of key concepts, words, questions, connections, confirmations and misconceptions that were of central importance to learning about the topic. We intentionally involved students in creating the bulletin board as one way to ensure that science was about asking questions, examining information, wondering about multiple interpretations, and revising previous understandings.

Figure 2 Bulletin Board



Collaborative reading practices

Stahl and Clark (1987) found that grade five students who thought they might be "called upon" or who were "called upon" to contribute during small group reading discussions outperformed those students who did not anticipate being called upon on reading comprehension and vocabulary assessments. Such a collaborative approach to group discussion meant that each member was accountable for contributing to the group's learning. We developed two ways to make students accountable for their own and the group's learning. First, we established learning partners who worked together during guided reading. We explained to students that talking was part of learning because sharing ideas is the key to expanding what we know and clarifying what we don't know. Learning partners were expected to "turn and talk" about the inquiry question posted on the chart located beside the table, piggyback on each other's ideas, and support each other to complete tasks. Second, the teacher wrote each student's initials onto the chart and recorded each student's contributions in one color of felt-tip marker *before* reading and in a different color *after* reading. The different colors represented how ideas changed as children read, discussed and processed information. The students looked forward to discovering "misconceptions" or "confirmations" in their thinking and adding them to the bulletin board. This routine reinforced the message that "critical reading" was about monitoring each other's inferences to ensure that the interpretations offered integrated the text information and background knowledge shared by the group (Norris & Phillips, 1999).

The teacher shared the lesson purpose and the task and modeled key steps. The students read and worked in learning pairs and the teacher conducted conferences with each student or facilitated pair discussions. Students shared their insights about what they read and reflected on the strategies they used.

Comprehension and vocabulary strategies

Sara, Colleen and I created an inferential thinking rubric in a research meeting (see Figure 3 below). We developed the rubric to operationalize our definition of inferential reading, and we used the same rubric in all subject areas because "the essential nature of reading—inferring meaning from text—is the same no matter what is being read, even though there may be variations in reading purposes and strategies across text types and reading contexts" (Norris & Phillips, 2002, p.228).

We introduced students to a partially completed rubric (only the proficient level was filled in) and worked through a series of different inferential thinking lessons to develop the rest of the rubric. One lesson opened with an enlarged picture of a crime scene. The students examined the scene and used their background knowledge related to tracks (e.g., depth, distance part, change of direction, change in number of tracks), weather, and time of day to offer interpretations that the teacher recorded below the picture. The students worked in pairs to create what they believed to be a "proficient" interpretation of the crime scene. As the pairs shared their interpretations, the teacher and students discussed how they determined whether or not an interpretation was "proficient." They considered how they had used both the information in the text and their knowledge of crime scenes to make inferences. Students discussed whether their inferences were accurate and logically connected, and they took into account different ways of interpreting tracks (not all scientists agree on the best way to do this).

Figure 3: Inferential Thinking Rubric

Criteria	Excellent	Proficient	Basic	Insufficient
Inferential Thinking Task	**Insightfully** integrates text and background knowledge	**Meaningfully** integrates text and background knowledge	**Superficially** integrates text and background knowledge	**Inaccurately or partially** integrates text and background knowledge

Students posted examples of their work with reflections that explained why they felt that their work was proficient, excellent, basic, or insufficient. For example, Joey (pseudonym) stated, "It is insightful because we wrote two possible ways of interpreting what took place [in the crime scene] because one scientist looked at [the] depth of a track and the other also considered the clarity of the indentations and whether or not they changed." Therefore, phrases like "take all perspectives or points of view into consideration" were listed underneath the "excellent" level as a reminder that the most comprehensive scientific interpretations acknowledge that science is not a series of undisputed "facts." The students and the teacher selected the best qualifiers (words written in bold-face type in the rubric) from their lists of words under each level. As students continued to work with the rubric and the work samples, their reflections created shared understandings about inferential thinking.

We developed guided reading tasks that required students to make inferences, and we concentrated on vocabulary learning strategies. For example, we created a "Concept Card" task (See Figure 5) that required students to:

1. preview text and select a key vocabulary term,
2. write a definition in their own words,
3. create a linking picture to help students re-member the definition,
4. create a linking word that connects to our unit of study,
5. write why that word was selected, and
6. write an answer to the inquiry question that always required interpretation of the text.

The concept card task was constructed based on our professional reading about the importance of students self-selecting key vocabulary (Graves, 2009); paraphrasing a word's meaning within a given context (Beck, McKeown & Perfetti,1982; Stahl, 1983); drawing pictures of key vocabulary related to "generative word processing" and improved reading comprehension (Bull & Wittrock, 1973); and making connections among known and unknown words (Allen, 2006; Stahl & Nagy, 2006) (see Figure 4 below).

Colleen, Sara and I found that once we studied and planned to implement research-based practices that we assumed such practices would lead to improved student learning. When we took up a praxis stance (Kemmis & Smith, 2008), we worked against the tendency to privilege practices; that is, we did not assume that the changes in our practices, which had been prompted by what we had read by experts, would be positive for students. We took seriously the idea that our actions were *"morally-committed and oriented and informed by traditions in the field* [emphasis in original]" (Kemmis & Smith, 2008, p.2). Based on our moral commitments, we understood that we needed to pay close attention to students' responses to our instruction and to critically reflect on their responses. Therefore, we collected students' reflections on their experiences of differentiated science instruction by having our guided reading groups "control" audio-recorders at their tables (i.e., they could engage in tasks and ignore the recorder, shut it off for a 'private conversation' or stop and rewind it to reflect on their learning).

Figure 4 Concept Cards: These cards were created on recipe cards and hole-punched and collected on individual binder rings.

Front of the Card

Essential Question:_________________
(Linking picture)
Target Vocabulary:_________________

Back of the Card

Definition	Linking Word
Connection (optional---only is time permits).	

After Sara, Colleen and I reflected on transcripts from audio-recorded guided reading sessions, we held conferences with students to delve more deeply into their thinking about certain moments that we highlighted as puzzling in transcripts. In this section, I highlight one example of our praxis-based ways of reflecting with each other and with students; these reflections compelled us to change our teaching practices and to position students as collaborative learners in science.

Reflecting on Silence in Students' Reading Groups

Although Sara, Colleen and I expected that assigning students to work as partners and making them highly accountable for their collaborative tasks during guided reading would be beneficial to students' comprehension of science texts, we found that such an approach was not always productive. In particular, when certain students were silent, silence provided an opportunity to probe into what was happening and whether or not students were improving as expository readers.

One advantage of assigning students learning partners during guided reading was that it reinforced the importance of talking to think and made students accountable for contributing ideas. However, the disadvantage was that we had mistakenly associated "talking" with "thinking" and were initially too preoccupied with getting students to "talk." Ollin (2008) distinguished between "vocalization" and "verbalization": "The distinction is often blurred in writings on teaching, where the term verbalization is often equated with talking, whereas it can encompass other types of verbalizing activities, such as writing" (p.3). Students were required to read a text and then to write and/or draw relatively sophisticated responses to texts. Students spent a lot of time rereading, marking the text (e.g., highlighting, circling, writing margin notes), and completing tasks (e.g., concept card). Vygotsky (1986) stated, "The relationship between thought and word is not a thing but a process, a movement from thought to word and from word to thought" (p.250). The acts of marking the text and completing the written/visual task were "verbalizing activities" that presumably assisted students in moving from words on a page to thinking about them as they wrote and crafted their responses to the texts read. When we assessed students' written and drawn responses to the texts created during guided reading, all students produced high quality work and performed well on inferential tasks and test questions. Therefore, we suspect that silence was necessary for helping them to verbalize on paper in highly productive ways.

What we hadn't anticipated was that our expectations of collaboration interfered with some students' progress as readers of science texts in learning partners. Some students were incredibly slow at completing tasks and were also consistently quiet throughout most of the guided reading sessions. In one child's case, we asked her why she was so quiet, and she said, "I don't know." She was a marginal student in most subjects. For about three weeks, possibly a month, as Sara, Colleen and I reviewed her work and transcripts from audio-recorded guided reading sessions, Sara and Colleen assumed that her silences were due to her cultural background and second language learning challenges. However, when I came across an article by Collins (1996) that I shared with , Sara and Colleen, we noted that teachers often associated a child's silence with fear, timidity, or cultural preference even when the child does not make any of these claims. We also read Phillips (1988); she noted that some readers use silence as a strategy to hide their confusion about what texts mean. After reflecting on these readings, Sara stated, "You know what? I think I might have been wrong about her. Maybe she is struggling?" Colleen commented, "It is pretty easy to whip right by the quiet ones, too, and assume that I know best. But if we are saying that students know what is best for them, then, clearly, she doesn't know whether being quiet is helping her or not."

Based on these professional reflection sessions, we decided to treat this student's future points of silence as a cue for us to conference with her, change her learning partner, and/or to provide her with additional text and task choices. Therefore, it was most helpful to the student for us to stop and consider her response more closely and to consider what such moments meant when she couldn't offer us an explanation. In her case, we overturned our tendency to blame the student's cultural and linguistic background for her lack of success. Instead, we assumed that our practices were problematic and that changing them was necessary to better support this student as a science learner.

We were also surprised by the role that silence played in competitive student groups. For example, students were creating their theory about what happened in a crime scene:

> Joey: But there could be someone pushing his bike here
>
> Ian: Ya, that could be an inference
>
> Mark: The person is maybe headed in one direction
>
> Joey: [Student referring to seeing what Sandra wrote on her paper] That was my idea?! Jackers [a term that the student explained as "stealers"]
>
> Ian: You're a good actor, Sandra [looked as though she was innocent]. Very good [Implying that Sandra was being manipulative].

In this excerpt, the students spent more time talking about each other looking at their papers for answers than their theories of the crime scene. For most of this and numerous other transcripts of audio-recorded guided reading sessions, there were large pockets of silence punctuated by competitive interchanges as exemplified above. Collins (1996) spoke about silence as a necessary part of Western culture where individuals are rewarded for individual discoveries. We had promoted idea piggybacking, but a longer history of a societal pressure that endorsed silence as a means of idea hoarding won in some situations.

When we reflected on this particular group's transcripts, I noted, "I witnessed this but didn't think much about it." Sara followed, "I think we are so used to competition for marks in our world that we kind of accept it and we really shouldn't let it drive out good learning." Colleen concluded, "This is a chance for us to raise their awareness. I think we have them read this [transcript snippet] and have them discuss why it is…hurtful."

The students got together to review the transcript snippet with Colleen:

> Joey: [smiled] Ya, I know, I know. But it's true, too, though. She always does that.

> Colleen: What do you mean?
>
> Joey: Well, marks matter and she's always taking the best ideas.
>
> Sandra: I wasn't doing that. I was just turning my head.
>
> Ian: But we are supposed to piggy-back so what's the big deal?
>
> Colleen: Right, I always say that piggy-backing is good. I guess I see that maybe we have become too focused on marks. I am worried about that. Do you have any suggestions for how to deal with these situations?
>
> Joey: I think we shouldn't get grades on it [points to guided reading assignment].
>
> Colleen: Okay, let's not grade them but do you think it's going to change the way you will handle yourself next time?
>
> Ian: I think we need to practice it, like piggy-backing more.

After this teacher-student reflection, Sara, Colleen and I worked harder to model what it meant to piggy-back on others' ideas to create new ones. We also took time to write feedback on guided reading assignments without grading them. Students improved markedly in their ability to bounce ideas off of each other instead of becoming overly competitive when reading collaboratively.

Conclusions and Implications

Taking up a praxis stance (Smith, 2008) requires teachers, literacy coaches, university researchers and students to work in a flattened hierarchy, where no one voice matters more than another. We achieved this by assuming that we would have beliefs and assumptions that would be overturned by students if we took the time to gather students' responses to our instruction and to treat their responses as legitimate invitations for professional inquiry. For example, when the student who was always quiet stated that she was unsure why, initially, Sara and Colleen acknowledged that they made rationalizations for her poor performance on reading tasks. Once we treated the student's limited ability to articulate her response as a location for further inquiry, we taught differently and improved that student's opportunities to perform better on reading tasks. Taking up a praxis stance also meant that we had to work against our tendency to make rationalizations without checking the assumptions underlying them. Because I was in a doctoral course and was learning how to read situations from different theoretical angles, I brought articles related to the meaning of silence in reading to mediate our critical thinking as professionals. The implication is that teachers who come together from diverse background experiences can capitalize on such diversity as a location for collective and innovative knowledge construction. On more than one occasion, Sara, Colleen and I differed in our ways of understanding transcripts from audio-recorded collaborative reading sessions, and we hung onto our struggles to puzzle through our questions by talking more with students. When we didn't have diverse views, we searched research literature for alternative ways of thinking about our inquiries rather than assuming that we had the 'right' answer.

When Sara had students come back together to reconstruct and reflect on the moment when they were acting competitively, each student took seriously her question about what was happening, why it was happening, and how our classroom community could change their ways of interacting. When one student suggested not grading and another argued for more scaffolding to learn how to piggy-back ideas, both suggestions were implemented by our professional learning team. Students witnessed our sincere efforts to address their ideas through our instructional routines, and they became more open about offering their feedback of teaching and learning as it unfolded.

While it might sound as though Sara, Colleen, and I made such a shift into a praxis stance quite seamlessly, Sara underlined, "All was not roses." In fact, we co-presented on our struggles to maintain a praxis stance at the International Reading Association Conference in 2010, and Sara stated to the audience, "I don't think I really knew that I was taking on a praxis stance because I was too busy trying to figure out how to reflect on transcripts." Colleen stated, "We were so used to just going about our business of trying strategies and moving on that this kind of slowing down was really hard to do." The implication is that future teachers and researchers need to explore and document how they worked through struggles to become praxis-oriented communities.

Finally, Sara, Colleen and I are convinced that if teachers position themselves as professionals who prioritize students and their learning, a praxis stance in professional and classroom communities is necessary to enact such a priority. We argue that it has never been more timely and important for teachers, in this age of top down mandates and limited funds for teacher in-service education, to embrace working with university students and researchers to plan, teach and reflect together on questions of mutual importance as highlighted by teachers and scholarship.

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