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Teamroom Caverns: Looking at Learning in a Whole Language First/Second Multi-age Classroom

Renee Webster

"They're coming," announced Susan, as she poked her head into the classroom.

"Are all the guides for Mrs. Tucker's class ready?" I asked.

"I think so, Mrs. Webster," replied Susan as she stepped into the room to get the flashlights and name tags. As she closed the door behind her I could see a group of fourth graders forming alongside the Teamroom Caverns and heard Ryan begin his introduction of the Teamkids' "Down Under Project." This incident gave me a different view of learning than I had known in the past, and I marveled at the competence and ownership these six-, seven-, and eight-year-olds demonstrated in their learning.

Mrs. Tucker's class was one of many classes in our building that had responded to the letter we wrote inviting classrooms to sign up for guided tours of our cavern. The creation of a five-chamber cave was the cumulating project of our study of *Our Changing Earth*. The caves, created from boxes, were large enough for students to actually enter and explore as spelunkers. The Teamkids had painted the caves black on the inside so the caverns were completely dark once explorers crawled away from the opening. Visiting students had anticipation written all over their faces as they reached for the flashlights offered by their tour guides. With obvious pride and expertise, the Teamkids, acting as guides, shared advice with the visiting spelunkers and handed them the rope that marked the way to the cave entrance.

In places where the boxes had been joined together, only small openings had been cut to create a narrowing effect. Students had to wiggle on their stomachs to get through these sections of

the cave. The voices of excited spelunkers echoed from the cave as they confronted the challenges and thrills of cave exploration. This only added to the tension of other spelunkers waiting in line. Of course, the Teamroom guides reminded visiting classes that true spelunkers only left their footprints in the caves they visited and, therefore, were asked to be careful inside the cave so as not to destroy its natural beauty. Totally absorbed in conducting their tour, the guides' confident voices and muffled giggles floated into the classroom, warning cave visitors to hold their noses as they entered the bat chamber. Bat manure smells really bad and can cause some people to pass out, they warned. They elaborated on how in some caves the mining of bat manure was big industry.

Drawings of animals that lived in each zone of the cave were pasted to the walls of the caves. The guides took care to explain about the differing temperature zones in each chamber and the animals that made their home in each zone. They included how the animals survive, what they ate, and whether they were permanent or temporary inhabitants of the cave. The exchange of information during these tours provided my students the opportunity to share what they had conceptualized during our inquiries with learners from other classrooms.

Although the caverns were constructed from large cardboard boxes, the interiors depicted realistic characteristics of authentic caves, including stalactites, stalagmites, native animals, cave paintings and minerals. Students built the chambers based on their investigations using information from both class inquiries and individual searches. As a class, the Teamkids had decided to build a

limestone cave, and everyone had drawn models of limestone caves showing how water worked to create the caves. They also figured out ways they might join our refrigerator boxes together to create a series of chambers. The Teamkids had been impressed with the splendor and variety of the calcite formations viewed on the videos they watched and wanted to create one room of the cave with an abundance of stalagmites and stalactites. In another chamber they planned recreations of authentic cave paintings which they had gotten from the Internet. The Teamkids worked in small groups, with each group being responsible for one chamber of the cave. Together, they had to come up with ideas of how to represent the information they wanted to share in their chamber and “doable” ways to construct these ideas.

As a whole language teacher I have been accused of using a laissez-faire approach to education. However, I believe a sophisticated analysis of the strategies I use such as mini-lessons, “teachable moments,” guided lessons, and strategy conferences, reveal that these practices are not haphazard but, rather, are informed decisions based on authentic assessments, ongoing observations, and conferences. There was nothing casual or unstructured in the forethought or planning of instruction that occurred within my whole language classroom as I engaged my students in a study of *Our Changing Earth*. Through my whole language philosophy, where the emphasis is on learning, facilitated but not directly controlled by me, I am able to vary styles of instruction and offer conditions necessary for ALL children to actually engage in learning.

Organizing a Theme Investigation

Because I valued and respected these young learners, I believed they needed to have input and choices in what they studied, as well as opportunities to participate in decision-making processes. However, I also knew my district curriculum was based on a framework of state standards with certain outcomes the district expected each student to achieve. Nevertheless, I realized I did have some control over the means I employed to assist my students in accomplishing these outcomes. For example, land forms, food chains, and light were all science concepts indicated by our district curriculum to be taught to first and second graders. To keep learning whole, or in context, I focused on developing ways to meaningfully connect these curricular topics to the real lives of my students. In this case, I could see how in the process of investigating *Our Changing Earth* I could link all of these concepts, along with substantial amounts of reading, writing, speaking,

and listening through the study of caves. This investigation of caves would allow us to integrate the topics of light, land forms, and a cave food web much more effectively than teaching the topics as separate entities.

Invitation to Join the Learning Club

At this point you may be wondering how I planned to give students choices and attend to their interests if I had already decided to study caves. Rather than walking into class informing students that they would be studying caves, I focused on thinking of techniques to generate interest in this topic. I have learned through experience that students will expend the energy necessary to learn if they are interested in the material. The “behind the scenes” work I did to *prepare* them to engage with this topic profited learners by giving them reasons to ponder their own understanding of the topic. This process of activating relevant prior knowledge assisted in linking what my students already knew to the new information they would be researching. Through this activity I was able to note what knowledge gaps needed to be addressed before students could continue their development of concepts. Once these connections with the topics became part of our conversations, I invited students to brainstorm ways to approach their personal and group inquiries.

I knew people's attitudes about a topic were affected by the amount of their prior knowledge, so I planned a KWL (recalling what is known, determining what students want to learn, and identifying what is learned), and brainstormed with the Teamkids all they knew about things found underground. As they rattled off items such as worms, frogs, snakes, rabbits, moles, animal homes, graves, dirt, rocks, roots, water, wires, pipes, foundations, mines, caves, and fossils, I quickly sketched each item, printing its name next to my drawing, thereby creating a large web on a huge sheet of chart paper taped to the wall. Students had the opportunity to explain how they came to know the information they shared, and at times they questioned each other for clarification. As personal stories erupted, John shared a story about burying his hamster, and the Teamkids questioned if graves should count as things underground. After reaching consensus that they should, the students went on to discuss the difference between things that were always underground and those things that moved between underground and above ground. In the end, the sketches combined with the words offered a means for both emergent readers and more fluent readers to use the document as a source of information. This map stayed on the wall throughout

our investigation and became a graphic organizer of our discoveries as we continually added new information and revised ideas to clarify misconceptions.

Literature Connection

Along with the KWL I chose to read aloud *Maria's Cave* by William H. Hooks. The narrative of Maria in this text had the power to galvanize students and indirectly provided them with an accurate, living context in which to place facts and details about caves. This 60 page chapter book related the adventures of five-year-old Maria and her father, an amateur archeologist, as they explored a cave together and discovered the first cave paintings at Altamira. This book was full of descriptions of caves and cave paintings and shared the struggle of Maria and her father to get the archeology association to accept their discoveries. It would be 1902, twenty years later, and after similar cave paintings had been discovered in France before their discovery was recognized as one of the greatest events in the unraveling of Stone Age history. Here I planned for a piece of literature to be the medium to introduce students to historical events and science topics. While reading this story the Teamkids became enthralled with caves, and their fascination was instrumental in their request to study them.

I also planned to use *Maria's Cave* for reading circle discussions because I valued the opportunities talking about a text offered my multi-age group of learners, both from a reading comprehension experience and for the oral language development it provided students as they were asked to be both listeners and speakers. After reading from *Maria's Cave*, the Teamkids joined their book clubs to respond to the text. Some days they responded orally talking about the issues that puzzled them in the story and sharing personal links they had made with the text. Other times students had the chance to talk and write about their responses. These opportunities for sharing assisted the Teamkids to "think about what they knew about the topic" as they attended to the story. Many students shared their points of view and questioned the unfairness of the other archeologists. Ashley wrote about the puzzles the story left in her head, while Andrew and Tim made comparisons between a movie they watched and the story. Often students wrote linking their feelings with Maria's, composing words or pictures to retell incidents when they were unable to get an adult to listen or believe what they had to say.

Through demonstrations I modeled ways to respond to text through personal connections, creative thinking or critical analysis. Book "talks"

were an important piece of our study because they allowed the Teamkids opportunities to verbalize associations they had made from the story, to probe their memories, to expand upon their prior knowledge, and to make personal connections. These book "talks" were also a place where personal understanding was extended or changed because of discussions with others.

Valuing a Learning Community

As a learning community we brought closure to these book talks by meeting together as a class to summarize our discussions. It was interesting to note how often these summaries included predictions that students advanced concerning the events in the story and their growing knowledge about caves. Schema theorists say that reading comprehension involves constant hypothesis testing. The predictions the Teamkids made were like hypotheses they were later able to confirm, refine, extend or reject them using evidence from *Maria's Cave* or from their personal investigations.

Anytime students collaborated, such as during these community shares, I found myself challenged to create an environment that fostered a free exchange of different viewpoints designed to help students actively shape their own knowledge, yet, at the same time, provided accurate information which enriched and refined their understanding of the topic. When students were brainstorming, all answers were accepted. However, when a student was building a point, she needed to support it with evidence. Otherwise, the discussion would not assist students to refine their understanding. The tightrope I walked as their teacher was in knowing how to gracefully request more information from students when their messages were not clear. I also expected that as I modeled for students how to do this, they would begin using the "phrasing" I had provided when asking classmates for clarification. This required us all to be active listeners. Listening affirmed our respect for others as people, and for their ideas and contributions. In fact, careful listening worked to bind us together as a class.

In a safe setting such as this, I was able to observe students arrive at clearer understandings as they questioned their own "thinking" and that of their classmates. These opportunities for students to process and reflect on questions were important for me to include since I wanted to promote an environment in the Teamroom which included students in the learning-assessing cycle. Teaching a multi-age program where students participate for two years, I have found that I am able to offer an environment where the more knowledgeable learners, those who are experiencing

their second year in the program, can make cognitive activities visible through think-alouds, questioning, and the oral sharing of strategies with their classmates.

During this unit of study as students made their cognitive process available to each other through talk, they constructed meaning together. Hence, when the more-knowledgeable Teamkids made their learning public, other learners in the classroom were provided opportunities to adopt what they had observed and internalize it. By taking advantage of teachable moments that occurred throughout this unit, I orchestrated instructional opportunities many times by simply highlighting students' own language, making note of their insights to other students.

Since a risk-free environment was critical in my classroom, when misconceptions were discovered during our data gathering, rather than saying, "no, you're wrong" or "that's not right," I redirected the information into an inquiry without jeopardizing the value of the student sharing the information, and at the same time created a meaningful purpose for our continued study of the topic. At times I was the individual who questioned the accuracy of an idea, while other times it was another student who questioned a comment for further clarification. I pushed students to thoughtfully consider ideas, to ponder the thoughts which caused them to wonder about land forms, and to frame these wonderings as questions.

Extending an Investigation Through Questioning

The Teamkids' community discussions and predictions led to many, many questions about caves and the earth. With their interest heightened, the Teamkids compiled a list of thirty-one questions related to land forms and caves which we listed on another sheet of chart paper and posted next to their mapping. It had become a classroom routine to label questions with the name of the student who framed the question. The Teamkids liked nothing more than to assist their classmates in locating information which solved a question. The Teamkids' questions held amazing power during their investigation. Like a quest, the fun was in searching and discovering the answers.

This month-long study investigated the Earth's features, including mountains, volcanoes, valleys, canyons, plains, hills, islands and continents. Rock explorations and experiments were used to study igneous, sedimentary and metamorphic rock, including how they were formed and how they wore away. The Teamkids also took an imaginary journey in the *Magic School Bus* to

learn about the Earth's crust, mantel, outer core and inner core.

Applying an Individual Investigation Model

Using our growing list of questions I conferred with individual students to select a question on which to focus their research. Then following the investigation model demonstrated in class, the Teamkids went to work, researching and compiling a mini-synopsis explaining their findings. In my efforts to have students take greater responsibility for their own learning it was important that I did not hold back from providing assistance when it was needed. As I listened to my students work together, it was my responsibility to decide when to intervene. I judged whether to extend the current line of thought, nudge the conversation in what I thought was a more promising direction, or offer support in a more explicit form. I found that when students were deeply absorbed in their subject matter, formal instruction brought students to new levels of understanding, and my interventions assisted them in probing their thoughts, testing their ideas, and learning. At times I heard a student misinterpreting a piece of information. This led me to gently question the source of their data, leading the student to return to the text. In this way I found I could scaffold their reading of information text. Often these young learners had information but needed support in how to organize it sequentially in written form. Again, I was able to model the needed skills and strategies such as mapping and summarizing during mini-lessons.

The format the Teamkids used for their personal investigations was a model I had demonstrated during our classroom investigations. This model was a slight adaptation of the Individual Investigation Model I learned during a workshop conducted by Louise Wroblewski at a multi-age conference five years ago. Using informational texts such as: *Caves and Caverns*, by Gail Gibbons, *The Magic School Bus Inside the Earth*, by Joanna Cole, *How Mountains are Made*, by Kathleen Weidner Zoehfeld, *What's Under The Ground?*, by Susan Mayes, *Look Inside the Earth*, by Gina Ingoglia, *Caves*, by Stephen Kramer, and dozens more from texts I had collected for this unit of study, I read as the Teamkids listened with the purpose of discovering answers to our questions.

Before reading an informational text with my students, I made sure I was aware of the organizational patterns of the structure of the text. This was necessary for me to do if I wanted to model what students needed to be thinking as they listened to and attempted to comprehend the infor-

mation. Nonfiction plays a key role in early literacy because it connects children with expository writing and requires that they use thinking processes different from those used for reading fiction. Young learners, like the first and second graders I work with, need to know how the information will be presented by the author. Will the information shared be in a reporting format, a procedural (how to) format, an explanation (cause-and-effect) pattern, a recounting format (where an event is reconstructed in a logical sequence that leads to the conclusion), a persuasive format, or a narrative information format (where factual information is in a narrative structure)? It was only after I was aware of the text structures of the book that I was sharing that I could effectively model how to appropriately slow down, reflect, preview, or step-out and map the information being presented by the author.

When I finished reading a text or a section of information, and before students discussed the book, they returned to tables to write. Using strips of paper and their phonetic spelling, they composed and recorded either facts they learned from the reading, an answer to someone's question discovered in the text, or a piece of information they found interesting. Every time we used a new informational text, video, CD-Rom, or other piece of media to gather information, we marked it with a numbered magnifying lens. A magnifying lens with the corresponding number was always drawn by the student on her fact strip so that if someone later questioned that information or wanted more clarification concerning that fact, we knew the resource book from which the information had originated.

Not all the texts we labeled were in written form. At times I prepared group experiences such as experiments, role-playing, games, activities, or mini-projects which created conversation around the issue we were exploring. After the event we met as a class to reflect on our learning. The conversation or discourse about the event created an oral text we labeled with a magnifying lens which helped students return to these thoughts at later times during our investigation.

When the strips recording what we had learned were finished, the Teamkids again met at the rug where we reviewed what they had written and looked for ways to put their information in categories. During this time if a student had used a pictorial representation or nonconventional writing, I recorded what the student read on a sticky note to keep with their writing, enabling us to remember their thoughts.

I had two reasons for following up my students' writing with this whole group activity. First,

looking for headings under which to group their information assisted students in organizing the data, providing a slot in their memory for filing the information presented in the text. Secondly, the whole group activity required students to report and support the information they perceived from the text to their classmates, at times disconfirming existing beliefs. I always felt fortunate when the information on a student's data strip provoked disagreement because it then challenged students' beliefs about the topic and functioned to help students do more reading and thinking, thereby helping us modify misconceptions about the topic. This function seems especially important given recent findings from research that indicates students' existing prior knowledge and biases will superimpose themselves on text information when the two are at odds (Alvermann, Smith, and Readence).

Using poster paper on rolls, I cut and hung long strips of paper from hangers to use for documenting the Teamkids' research. With the headings the students created to organize their data strips pasted on the top of each hanging sheet of paper, the students glued their own fact strips under the appropriate heading. This provided the Teamroom with a reference for their research. While the Teamkids' investigation of *Our Changing Earth* continued, these "hanging data sheets" continued to be filled with information. New headings were created as new informational texts were shared. Gradually, I backed away from assisting those students ready to become more independent in their inquiries. In this way I supported these young learners with a framework they could use in the future when organizing and writing their own expository reports.

With their personal research question in hand, the Teamkids chose to work with a buddy, alone, or in small groups. They read to gather the information they needed and developed answers to their questions. Students took notes, drew pictures, and then wrote summaries which they later revised and posted in the hallways beside the cavern.

One student researching different kinds of caves revealed in his report that "*There are several different types of caves including, lava, tube, sea, sandstone, limestone and ice.*" He noted that not all caves are below ground. "*Caves can also be found in mountain sides.*" Another student explained her research on the Earth crust, writing "*The earth is constantly changing. Our continents used to be all together in one big land mass. During an ongoing process the land masses continue to spread out causing changes to the outside of the earth.*"

The more capable readers assisted the younger

readers in the class to locate the information they were seeking. Some students found answers through resources they had at home, others traveled to the local library to secure information, while others interviewed parents or an older sibling. Everyone completed his/her search and wrote a summary to post and share with visitors.

The local news reporter arrived to take a tour of the caves and interviewed the Teamkids about the process they used to create them. During her tour, guides told her that *"There are three different zones in caves including the constant temperature zone where the temperature remains the same, the variable temperature zone where there is some temperature changes, and the twilight zone where light comes in."*

Teamroom guides also informed her that *"Different types of animals live in different zones within caves. In the twilight zone you might find birds, snakes, mice and skunks. Beyond the twilight zone is the variable temperature zone where you might find bats and salamanders. In the constant temperature zone you could find crayfish, fish, or worms."*

"Although some animals come and go in caves, the animals that live in caves all the time don't have eyesight because it is dark and they don't need their eyes," noted another guide.

The next guide reported how light traveled and why you can't see in complete darkness. He went on to tell her how light is needed for photosynthesis and explained why you would not find green plants growing inside of caves.

Another phenomenon easily explained by the student guides was the formation of stalactites and stalagmites. *"Stalactites and stalagmites are formed the same way as a limestone cave is created. When water mixes with carbon dioxide it makes an acid and creates icicle formations. As the acid slowly drips from the ceiling and goes down it makes a stalactite and if it drips to the floor it slowly builds up and becomes a stalagmite. You can remember which is which because the stalagmite has a "m" in mite, like mountain, and stalagmites look like mountains,"* shared an eager tour guide.

Towards the end of our investigation of caves the students learned that our school's principal was an experienced spelunker, and they drafted a letter inviting him to share his experiences with them. After he accepted our invitation, the Teamkids set up a meeting time, and each student wrote a list of questions he/she were interested in asking him about his experiences. His stories personalized the caving experience. As you can well imagine, it wasn't long before the Teamkids began writing adventure stories about daring escapes,

fantastic discoveries, and other experiences inside of caves during writing workshop.

Conclusion

Through this unit the Teamkids learned beyond the targeted objectives in all areas, and the learning was personalized to their interest. Over this extended period of time I was able to guide students into learning situations in which they revisited ideas, concepts, and strategies that they had internalized and applied them in new contexts where they could be further refined and expanded. Therefore, the "language or talk" in the Teamroom cannot be underestimated. Teamkids shared learning experiences, transforming and publicizing ideas which became part of the conventional conversations in the Teamroom. The language and ideas the Teamkids internalized during their cave experiences have frequently returned to frame events and ideas this year as students initiated new studies of spiders, building, and weather.

Our "Down Under Project" took on a life of its own. In fact, whole families were impacted by our study. Throughout the rest of the year Teamroom families made decisions to take family vacations to tour caves. Some parents organized a caravan of families to take a spelunking adventure together during our school district's winter break. The outcomes I wanted to achieve during this unit were in my mind, but my goal was to provide students with choices concerning how to reach these outcomes. I believed the Teamkids' choices needed to be genuine and immersed in real life experiences because if I expected students to develop as responsible citizens in a democratic society, I needed to provide them with opportunities to apply their skills during learning experiences. In this case, connecting the topics required by my district in a meaningful way, in addition to providing choices in students' personal inquiries increased the opportunities for powerful learning, not only about caves but about themselves as learners.

I think now about the choices my students make daily—to learn for real purposes—the "whole" in whole language. Just today, as I prepared my students to spend their recess in the cafeteria rather than on the playground because of bad weather, I found Kerstin tugging on my sleeve, asking if she could take the two books she checked out of the city's library to the cafeteria to continue her research on weather. Lacey and Mackenzie begged to take their drafting books. They promised not to lose them and rattled on to convince me that they should be allowed to take them because they are in the middle of co-authoring a story about a birthday party. Eric wanted to

finish his illustrations. Nichola was in the middle of the "best" story. She wanted to know if she could take her book with her because reading time wasn't long enough today. In the end there were three children with jump ropes, one with my box of matchbox cars, and the rest clutching reading, writing, and research materials headed towards the cafeteria for fifteen minutes of free time. I have to conclude that the initiative and responsibility these students demonstrate towards learning results from a classroom community built on respect for individuals and their developing abilities where learning is meaningful, whole, and provides them with a purpose for learning. The view of learning was reflected in Erin's project evaluation of our "Down Under Project" where she wrote, "This was fun. I learned a lot. Can we do more learning like this?"

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