FIELDWORK
NOTES FROM EXPEDITIONARY LEARNING CLASSROOMS

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The Workshop Model:

Making it Central in the Classroom and Schoolwide

An Interview with Gretchen Morgan

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The Workshop Model of Instruction

Guiding Question:
How do we use the workshop model throughout our classrooms and schools?

Why is the workshop model a central, instructional practice for Expeditionary Learning Schools?

The workshop model is a reliable structure for explicit teaching, instant application and practice, sharing and discussion, and synthesis. Students quickly learn the routines associated with the workshop and teachers learn to limit their on-stage time and to become explicit and focused in their instruction. The workshop model requires teachers to articulate targets that describe what they want students to learn. These clear learning targets can then be used to engage students in reflecting on their own learning and in becoming metacognitive. In addition, the structure allows teachers to differentiate instruction; during the practice/application phase of the workshop, teachers can pull individuals or small groups for additional and differentiated instruction.

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Esmeralda Castro, an eighth-grade student at The Crossroads School in Baltimore, Maryland, sketched the moon as part of a science workshop during an astronomy expedition (see article on p. 8).

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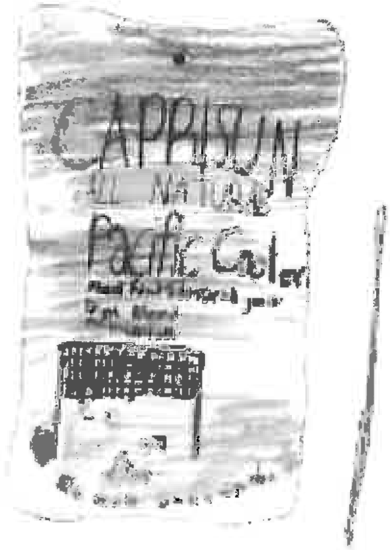
The workshop model is particularly powerful when it is used schoolwide. It then becomes a structure that students, whether in elementary, middle or high school, can rely on from classroom to classroom. In schools where the workshop model has been adopted schoolwide, students know that they will be introduced to clear learning targets and given explicit instruction related to those learning targets. And they know what their job is during the practice/application part of the workshop and how to participate in the debrief.

The workshop model is especially important in new schools or transforming schools where students are unfamiliar with the active role that Expeditionary Learning wants them to take. If one teacher tried to teach this in isolation, it would take much longer to teach students how to learn through active pedagogy. But if the workshop model is very consistent throughout the school, students will learn how to engage in an Expeditionary Learning school much faster.

What makes the workshop model so conducive to teaching investigation or expedition content?

The workshop model allows teachers to coherently layer more than one kind of learning target into a single lesson. For example, the teacher could select a small set of learning targets around an ecology investigation: *I can describe the components of the pond ecosystem and how they interact with one another.* The teacher could pair that content target with a secondary learning target in another area such as literacy, character education, or skills acquisition. In this case, it might be a readers' workshop focusing on determining importance paired with the ecology learning targets, and the teacher might ask students to read an expository scientific article to find information about the pond ecosystem. Or, it might be early in the school year when the class needs to focus on learning how to work in groups, and so the secondary target would be learning to take turns during small group discussion.



Second grader Jamie Gomez, of Lighthouse Community Charter School in Oakland, California, drew this juice container in connection with a writers' workshop on snack packaging (see article on p. 6).

One of the more elegant things about the workshop model is that you can provide instruction in one or two of these areas; support that instruction through the practice time; ask students to stop and reflect; and then debrief, asking them to check their progress toward the academic target and the secondary target. If the workshop is done well, it expects students to synthesize their current understanding every day, and that is challenging. But again, if done well, the students are supported by the structure. They are supported with the initial instruction that occurs during the mini-lesson and by their peers in social construction of understanding during the practice time and the debrief.

It's really a structured way for a group of students to participate in a very collaborative inquiry. Every day they go through this process together, learning new skills and new content, and every day they synthesize that learning. The next day they are reminded of their current theory, then learn some new information and/or new skills and support one another in

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The Power of 24 Minds:

Using the Workshop Model in Math

By Laurie Wretling

I often tell my mathematics students, "The power of 24 minds is greater than my one mind." This philosophy allows the students in my multiage, middle school classroom to expand their mathematical thinking by grappling with many different perspectives while working collaboratively. Through Expeditionary Learning's workshop model, students demonstrate their deep knowledge and challenge their own perceptions and beliefs about mathematical concepts while engaging in what might seem to be an every day, easily solved mathematics problem.

Recently, we did an investigation focusing on the study of probability in which the power of 24 minds proved to be true. The structure and routines that I have established within my classroom at Rocky Mountain School of Expeditionary Learning in Denver, Colorado allow students to discover the power of their ideas. Each class begins with a warm-up that consists of practicing a skill that will be needed for a more complex problem in that day's lesson. Next, the workshop begins with a 10 minute mini-lesson, followed by a 25- to 40-minute practice time, and concludes with a 15- to 20-minute debrief session. Often we complete a full cycle of the workshop in two, 70-minute class periods.

In a recent classroom investigation, we focused on the guiding question, "What do you expect?" based on the seventh-grade Connected Mathematics program. Because I teach in a multiage, sixth-, seventh-, and eighth-grade classroom, it is essential to differentiate instruction for all learners. During this investigation, students used a variety of manipulatives, such as spinners, die, and colored blocks to experiment with chance, determine outcomes, and discover the meaning and relationship of experimental and theoretical probability. In presenting students with the familiar rock, paper and scissors problem (see sidebar below), I wanted them to be able to apply their knowledge of probability to a familiar situation and to listen to the thoughts of their fellow mathematicians.

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ROCK-PAPER-SCISSORS PROBABILITY PROBLEM

The game Rock-Paper-Scissors is usually played by two people following these rules:

~ On the count of three, players show a flat hand for paper, a fist for a rock, or a V sign with their fingers for scissors.

~ Paper beats rock, rock beats scissors, and scissors beats paper.

~ If both players show the same hand symbol, they replay to break the tie.

Joey, Paula, and Cie wrote these new rules for a three-player game:

~ Joey scores 1 point if all three players show the same hand symbol, like rock-rock-rock or paper-paper-paper.

~ Paula scores 1 point if no one shows the same hand symbol.

~ Cie scores 1 point if exactly two players show the same hand symbol.

a. Make a list chart, or diagram of all the possible outcomes of this three-layer game.

b. What is the probability that each player will win any one round?

c. The three friends play 200 rounds. How many rounds could each expect to win?

d. Change the point system to make this a fair game. Explain your point system and why it is fair.

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MINI-LESSON

Using determining importance as the focus of the mini-lesson, I began with a think-aloud to model what problem-solvers do. I often focus on determining importance because I find reading comprehension challenges students working on word problems. I read the problem aloud while sharing my thoughts. "Hmmm," I mused, underlining the important words as I read. "I think that *flat* must be an important word because it tells how you win paper. So, *fist* and *rock* must also be important for the same reason."

I then asked students to do the same thing on their own. After a few minutes, I asked students to share their thinking. There were a variety of answers and we recorded all of their words for the class on an anchor chart (see side-bar below). They then used this chart to share their interpretation of the problem with the class.

WHAT DO WE KNOW ABOUT PROBABILITY?

~ Probability is chance.

~ If something seems unlikely, it probably is unlikely.

~ An even probability means there is a 50/50 chance.

~ There are sources of error when collecting data because different people do things differently.

~ Probability compares at least two things.

~ There is theoretical and experimental probability.

~ The more trials you do the closer the experimental probability gets to the theoretical probability.

~ Outcomes can be reversed to count as different outcomes (ex: blue/yellow could be yellow/blue).

~ Some problems do not have one specific answer but multiple answers.

The students in Laurie Wretling's multiage, middle school math class, at Rocky Mountain School of Expeditionary Learning in Denver, Colorado, created this anchor chart during a workshop on probability.

PRACTICE TIME

After a brief transition, students began working on the problem in small groups. Those who were struggling to interpret the problem used their background knowledge and actually began playing the game. As they worked, they recorded their thinking in their math journals. As facilitator, I listened closely to student thinking and pushed them to share their ideas with each other. I roamed from group to group, asking questions such as, "What thinking strategies did your group use when you got stuck?" or "What methods are you using to organize your data?" or "How will you know when you have listed all the outcomes?"

I listened to conversations and used large, blank mailing labels to script students' conversations. I recorded students' noticings and wonderings. I simply stuck the labels in a binder where I have a page for each student. This data helps to plan future lessons, support individual students, and see how students' understanding of mathematical concepts have grown over time.

As the practice session continued, the power of 24 began to intensify. Students who were stuck turned to fellow table members to explain their thinking process.

One student, Dane, said, "You don't need to write outcomes down that repeat because it only matters how many outcomes for the person to win."

The mathematical thinking grew as students challenged each other to explain their thinking and justify their answers.

Aly said, "Dominik, how did you get 30? You can't just add a 0 on to the end of the three outcomes. You need to make an equivalent fraction."

"Oh, I thought that would work because if I add up all the numerators then I get 200 that way," Dominik replied.

After 40 minutes, I asked the small groups to take whatever problem solving they had completed and create large posters representing their thinking to share with the whole group. I noticed that the majority of students had completed the problem and a few were still finishing up. Regardless, I encouraged all students to share their thoughts. This exemplified the important notion that sometimes it was not about the end product, but more about listening to others and seeing the different ways of thinking and solving a problem.

DEBRIEF

As students came to the board to post their thinking, I asked them to take several minutes to record in their math journals their observations (or noticings) about the mathematics on each of the posters.

"They all got the same number of outcomes for Part A, except for the last poster," Aly stated.

"And all the posters have a different answer for the expected number of times each player would win if they played 200 times," Olivia said.

"There are many different ways of representing the information," Freedom added. "Some people used a table while others used a counting tree to organize their data."

Again, the power of 24 minds was clearly evident as students' observations led to numerous questions and students began to compare ideas and understand the various ways of representing data and looking at problems. The conversation then evolved into which answer was right.

I questioned the class, "Okay ladies and gentleman, how are you going to justify your solutions and figure out what you think is the 'right' answer?" Several students explained why they thought their answer was right and the dialogue continued with each group providing justification.

Aly finally stepped in and said, "It's not about right or wrong, but how you interpreted the problem. If you interpreted the problem to ask how many outcomes without thinking about repeats for the winners, then you only got 10 outcomes, but if you thought it meant list them all regardless of repeating outcomes, then you would have gotten 27."

This statement provided students with the "A-Ha" moment that often comes with this more analytical step of the workshop model. The lesson concluded with the question of "What more do we know now about probability?" Responses varied from, "The number of possible outcomes affect the probability of each person winning," to "Probability does not always mean games have to be fair," to "The rock, paper, and scissors game is better off when just two people play." As students shared their thoughts, I recorded their thinking on a large anchor chart that hangs in the room. By recording their thoughts and collaborating, students are able to refer back to the chart and use this information to help them as they continue to investigate probability.

The workshop model of instruction can be an extremely valuable tool because it allows students to challenge their own preconceived notions about mathematics and take ownership for their learning through leading the instruction. Students are able to use collaboration and gain deep insight into what it means to think like a mathematician and to problem solve. In turn, I am able to listen more closely and focus on the thinking that is going on instead of trying to micro-manage each student. The most challenging part for me as a teacher/facilitator is stepping back and allowing students to evolve in their understanding, which means I am forced to focus on student thinking instead of the one or two struggling or off-task students. Those students are often naturally brought back into the conversation because of the social context in which learning is occurring. Allowing students to grapple with the probability in this problem and draw on the strength of group members was essential in creating a collaborative learning environment where 24 young, eager, and energetic minds were able to come together to be more powerful than the one teacher mind.

Laurie Wretling teaches middle school mathematics at Rocky Mountain School of Expeditionary Learning in Denver, Colorado.

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