

Teacher Content Knowledge and Inquiry-based Instruction

Following the participation of teachers in the first year of the NSF grant-funded Rocky Mountain Middle School Science and Mathematics Partnership, participants were asked to reflect on small or large successes they experienced as a result of their participation in the project. One theme that emerged from the teacher learners' verbal and written comments was that *teachers who gain a high level of content knowledge are more likely to "risk" using inquiry-based learning in their classrooms.*

Some participants were direct in expressing the idea that increasing their content knowledge resulted in more willingness and ability to use inquiry-based instructional models. Other participants provided indirect support for this theme. The following are examples of teacher learner comments from participants in the *Cells, Human Systems, and Heredity* course held during 2005.

My instruction has really changed from taking this class. ...I want to do more inquiry with my students now and now have the content knowledge to feel comfortable doing that.

--Danice Korb, York Middle School, Mapleton Public Schools

This project [RMMSSMP] has helped us use more inquiry using the scientific process/method. We have been able to apply our background knowledge to our science units by using and simplifying the scientific method to use in all our science lessons for our fifth grade classrooms. We have enjoyed enhancing our background knowledge to apply to our classrooms.

--Leslie Aranjó & Nadine Sinclair, Jefferson County Schools

I learned so much about my teaching style through this lesson study. Not only my science teaching has changed, but all subjects have been enhanced through the inquiry-based model. I have found myself allowing students more exploration time in all subjects, especially math. Instead of direct, dry instruction, I feel students are more interested and invested in their own learning.

--Megan Beck, Rooney Ranch, Jefferson

I feel more knowledgeable about biology as a result of taking this course. Although many concepts were not applicable [to my assignment], it was interesting.

--Christi Cassady, Russell Elementary, Jefferson County

My students have such a deeper understanding of cells because of my learning this summer and fall. I wish I could grab (find) my old students and re-teach them. Doing the lesson study solidified my learning that the inquiry-based approach allows students to internalize the concepts they are presented with.

--D. Rene Chavez, Rooney Ranch Elementary, Jefferson County

I feel I have much more background knowledge now. I also feel I am more capable of teaching about cells.

--Christi Cassady, Russell Elementary, Jefferson County

In addition to the teacher learners affirmation that increases in content knowledge encouraged them to use more inquiry-based instructional models and approaches, the consensus of the instructor team members in their debrief of the first year of the project indicated that the increasing confidence of teacher learners in their content knowledge contributed to their willingness to be increasingly flexible in their own classrooms.