Student Learning Objective Two

Theoretical Understanding

In the fall of 2006, I completed one of the many “panels” or formal debates that Dr. Rivas assigned in SED 625. The assignment included a researched position paper and a presentation with a partner where we were required to present a strong case supporting the inquiry only method of teaching science. We debated against another group that argued against the inquiry only method. Each group was given the opportunity to present an introduction, a body and a conclusion. During the conclusion, the groups were expected to offer rebuttals to the body of the argument. The assignment had to include several references.

This assignment required that I not only research the inquiry pedagogy, but also how children learn science best. I found out that there is a lot of education theory regarding how children are able to pursue the inquiry process successfully. The panel assignment exposed me to the research about the successes of inquiry science and because we also had to prepare for a rebuttal, the assignment also taught me about the pitfalls of inquiry. Much of the educational theory regarding inquiry has to do with how children learn and synthesizing this aspect of our reading into our argument was a very fruitful process. We were able to justify using the inquiry process of teaching science by citing its successes at addressing misconceptions in students.

The assignment also connected two very important theories in science education, metacognition and inquiry learning. After completing this assignment, I was able to modify my lessons in three very important ways. First, I was able to reevaluate my lessons for inquiry elements, such as framing lessons with an overarching question. Second, I added reflection components to lessons to allow students to think about their own thinking. From my research, I
found that the meta-cognitive aspect of inquiry is a crucial component to breaking student misconceptions about the nature of science being simply true or false. Students must examine their own thinking to address their misconceptions not only about science content but about science itself. Lastly, I began to explicitly teach the nature of science such as the importance of reproducibility of data, the fluidity of conclusions, validity of explanations, and the interconnectedness of different scientific ideas. The panel allowed me to truly evaluate the strengths and weaknesses of inquiry learning and implement valid changes in my own classroom.

Professionally and as a Master’s candidate, it was good to find out that there were no hard and fast rules to inquiry learning, that just like science, there are many ways to go about inquiry. In fact, there are many types of inquiry learning; open, guided, etc. The panel made me aware that it is difficult to take a strict pro or con position regarding many educational issues. Educational issues are as varied as our students. To always teach in one specific method would be a disservice to my students. I can offer many variations on not only inquiry learning, but on various forms of instruction to other teachers. The Master’s cohort has expanded my repertoire of pedagogy and its effectiveness to enable my students become better learners.