ABSTRACT

In my study, I investigated what are the observed and reported experiences of implementing inquiry-based activities in the high school science classroom for On-Level students. The 20 students that were part of my study were enrolled in the course, On-Level Earth and Space Science.

I assessed four units of Earth and Space Science by using 17 graded inquiry-based activities, including: the Lab Safety Group Activity, Solar Heating Lab, Lab Report on Designing a Barometer, and the Group Atmosphere Project. Students accomplished these units through group cooperative problem solving activities, laboratory activities, and a group project. Each of these activities was classified as being one of three types of inquiry: structured inquiry, guided inquiry, or open inquiry. I formatively assessed group participation for each unit with the use of a cooperative group assessment checklist. In addition, the students were given a survey and interview to assess their attitudes on learning science using inquiry-based activities versus more teacher-centered instruction.

Overall, my findings were supportive of the educational benefits of using inquiry-based activities in the classroom for On-Level high school science students. Academically, the class average results included: problem-solving activities—81%, laboratory activities—81%, and group project—82%. According to a survey given on student attitudes toward science, all students surveyed preferred to be active learners. The interview that was given also
reflected overwhelmingly, students learned science best by being active learners, which is an integral part of inquiry-based activities.