Appendix A: Project Context and Background

Towson University (TU), a member of the University System of Maryland, is the second largest university in the state. TU graduates more preservice elementary teachers than any other Maryland school: approximately 200 per year.

Science in Towson's Elementary Education Program

Before being officially admitted into the elementary education program, pre-elementary undergraduates are required to take an introductory physical science course, Physical Science I.

Later in the elementary program, just before the student teaching semesters, the elementary majors experience a "math and science" semester, which is a semester dedicated solely to the content and methods related to math/science instruction. The Department of Physics, Astronomy and Geosciences offers two courses during this math/science semester: Earth-Space Science, which is a combined content/methods course, and Teaching Science in the Elementary School, which is the elementary science field experience (early teaching/practicum) course. Student cohorts are enrolled in these two courses concurrently; ideally, to provide students with a coherent framework for science teaching and learning, cohorts have the same instructor for both courses. The intent is that, in the Earth-Space Science course, the preservice teachers learn science content and reasoning skills through inquiry, while at the same time reflecting on and explicitly discussing the structure and value of inquiry-based instruction; the methods content from Earth-Space Science is then supplemented and reinforced with additional methods discussions in the practicum course, in which the interns are expected to teach science through inquiry at elementary school sites.

An important aspect of Towson's elementary science education program is that, due to the large number of majors, there can be as many as 8 sections per course – many of which are taught by part-time instructors. Consequently, any program-wide reforms involve strong coordination between the multiple course sections, and new training for the part-time instructors.

Our Motivation for Improving the Field Experience Course

Before the official start date of the project, discussions were held with past instructors, mentor teachers and school administrators, and undergraduates in order to establish areas of improvement for the elementary science teaching practicum course. These areas of improvement included:

- In the recent past, a significant portion of school practicum placements had not been secured until 5 weeks (or later) into the semester
- The different sections of the course had not been uniform in terms the number of science lessons taught per intern, feedback on the interns' science teaching, and a primary focus on inquiry

- There had been a general lack of communication between the university instructors, mentor teachers, undergraduates, and school administrators about the purpose and logistics of the course, one result of which is that the course goals had not been generally well-understood by the people involved.

Also, at the beginning of the project, it was not known whether the interns exited the practicum course with a good understanding of (or appreciation for) inquiry-based science instruction, and, more importantly, it was unclear as to whether the interns' science lessons in the practicum schools were inquiry-based, or were instead more traditional types of science lessons.

General Questions that the Project Addresses

How can our program foster inquiry? What is reasonable to expect? What are barriers? How might the project results and lessons learned inform other reformers in similar situations?

How do we assess inquiry teaching so we can measure our progress?

Will any of the tools we develop, including curriculum and assessment tools, be generally useful to the elementary science education community and, if so, how might we disseminate these tools?