

Section

4

Connecting the Task to Unit Assessment

Section Overview: One of the purposes of this grant project was to help your institution prepare for the new teacher education program approval process that will use the NCATE standards.

NCATE Standard 1: Candidate Knowledge, Skills, and Dispositions

Candidates preparing to work in schools as teachers or other professional school personnel know and demonstrate the content, pedagogical, and professional knowledge, skills, and dispositions necessary to help all students learn. Assessments indicate that candidates meet professional, state, and institutional standards.

We began our task by reviewing INTASC Standard 1 (Subject Matter): “The teacher understands the central concepts, tools of inquiry, and structures of the disciplines he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.” Our assessment task assesses elementary candidates’ conceptual knowledge in mathematics and science. We believe that this knowledge facilitates the acquisition of pedagogical content knowledge and that courses intending to develop pedagogical content knowledge should be designed to strengthen candidates’ conceptual knowledge.

The Education Department Chair and Professor of Mathematics conceived of this project after she observed that students in her mathematics strategy course learned mathematics as well as pedagogical content knowledge. Teachers typically teach as they were taught and many of our students would enter the program having been taught mathematics as a set of procedures. After participating in the mathematics strategy course and solving problems in multiple ways through manipulatives, regrouping, and other strategies, candidates deepened their conceptual knowledge of mathematics. Science strategy instructors reported similar observations.

As a department, we have discussed using the assessments in a number of ways. These include:

- In a pre and post test design to assess the degree to which our strategy courses enhance candidates’ conceptual knowledge
- As a formative assessment at the start of the program to provide candidates information about their strengths and weaknesses. Candidates may be advised about course options based on the results of these assessments.
- To inform the ongoing development of the strategy courses by incorporating components addressing candidates’ needs.

- To design new courses or distance education modules that target candidates' needs. These courses would focus on mathematics and science content typically taught at the elementary level.

NCATE Standard 2: Assessment System and Unit Evaluation

The unit has an assessment system that collects and analyzes data on the application qualifications, candidate and graduate performance, and unit operations to evaluate and improve the unit and its programs.

We have not yet finalized our assessment plan. We are, however, considering using candidates' GPA in certification courses (e.g., strategy courses) at a transition point before student teaching. The mathematics and science assessments may be incorporated into the strategy courses. For example, we have discussed the development of a post test form that might be used in all sections of the same course. See Appendix C for a draft of "Assessment Transition Points."

Recommended Supporting Documentation

See Appendix C for a summary of the results of the pilot study, including recommendations for incorporating mathematics and science content into graduate teacher preparation programs.

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