Section IV Evidence for Meeting Standards
#5 Candidate Effects on Student Learning

1. Analysis of Student Learning

During student teaching, candidates are required to plan, teach, and assess student learning in a unit of instruction. Documentation of the entire experience exists in components of the Teacher Candidate Work Sample (TCWS), which replaced the Exit Portfolio in 2009. Among the six teaching processes within the TCWS is one that focuses on analysis of student learning. Ideally, this assessment is considered in conjunction with the other processes that relate to planning instruction during student teaching because the processes in the TCWS are designed to document a cohesive picture of the student teaching experience. Candidates use results from the pre-test and post-test assessments they included in their Assessment Plan for the unit they designed and taught to analyze student learning of the content contained within the unit. This Analysis of Student Learning replaces the Case Study component in the Exit Portfolio that focused on student learning of two identified students, a narrower lens of analysis of student learning.

2. Alignment of Analysis of Student Learning with NCTM Standards and Indicators

Program Standard	Indicators Addressed
Standard 3: Knowledge of Mathematical Communication	3.1, 3.2, 3.3, 3.4
Standard 5: Knowledge of Mathematical Representation	5.2
Standard 6: Knowledge of Technology	6.1
Standard 7: Dispositions	7.1, 7.3, 7.5, 7.6
Standard 8: Knowledge of Mathematics Pedagogy	8.2, 8.3, 8.4, 8.6, 8.9
Standard 16: Field-Based Experiences	16.3

3. Brief Analysis of Data Results

The TCWS replaced the Exit Portfolio in 2008-2009 and the eight candidates in that cohort were involved in the second semester of Pilot testing. This assessment is more comprehensive that the Case Study it replaced. In both 2008-2009 and 2009-2010 candidates found this process to be challenging, and scores earned reflect their difficulty with it. The process challenges them to consider the progress of the entire class, subgroups within the class, and individual students and offer a data-based analysis of why students did or did not show evidence of having learned the material. To receive a passing score on this process, students must earn at least half of the possible points. While every student passed this process, scores were generally lower than for other processes in the TCWS.

4. Data Interpretation

This assessment is prompting changes in our program. Construction of assessments, grading of student work, and error analysis has been a component within the Practicum (mathematics methods) course, but the national focus on interpretation of data to plan future instruction has necessitated greater attention in this area. With the implementation of the TCWS, the secondary education – mathematics program began to implement changes to prepare candidates for what is

expected of them as professionals, which affects them first in student teaching. The alignment between the assessment and NCTM Standards/Indicators is demonstrated here; we expect that within another year or so as Practicum instructors refine changes they are making in this area, candidates will be able to demonstrate greater competence in this assessment and in the NCTM Standards/Indicators with which it aligns.

5. Assessment Documentation

a. <u>Name of assessment: Analysis of Student Learning</u>

Teaching Process: The teacher candidate uses assessment data to profile student learning, communicate information about student progress and achievement, and evaluate his/her own teaching.

Task

Analyze your assessment data, including pre-, formative, and post-assessments, to determine students' progress related to TWO unit objectives. When considering which objectives to analyze, choose one that most students were able to meet and one that presented problems for some students. Use visual representations (such as charts and graphs) and narrative to communicate the performance of the whole class, subgroups, and two individual students.

Reflect upon and evaluate the relationship among unit objectives, your instruction, and student learning in order to improve your teaching practice. In this narrative, make specific references to your analysis of the assessment data and student work samples to draw your conclusions.

Prompt

Part I

For the TWO unit objectives that you select, analyze assessment data for the whole class, subgroups of students, and two individual students.

- **Whole class.** To analyze the progress of your whole class, create a table that shows pre-, formative, and post-assessment data on every student for the two unit objectives you have chosen. Then, create a visual representation (e.g., charts and graphs) that shows the extent to which your students made progress (from pre- to post-) toward the achievement of these unit objectives in your Assessment Plan section. Interpret what the graph tells you about your students' learning for the objectives selected.
- **Subgroups.** Select a group characteristic (e.g., gender, pre-test performance level, socio-economic status, language proficiency) to analyze in terms of your two chosen unit objectives. Provide a rationale for your selection of this characteristic to form subgroups. Create a visual representation (e.g., charts and graphs) that compares pre-, formative, and post-assessment results for the subgroups on these two unit objectives. Interpret what these data show about student learning for these selected objectives.
- **Individuals.** Select two students who demonstrated different levels of performance. In a narrative, Explain why these particular students performed the way they did. Use pre-, formative, and post-assessment data with examples of the students' work to draw conclusions about student performance on the two unit objectives. Create a visual representation (e.g., charts and graphs) that compares pre-, formative, and post-assessment results for the subgroups on these two unit objectives. Interpret what these data show about student learning for these selected objectives.

Part II:

- Discuss the unit objective that most students were able to meet. Provide two or more possible reasons for this success. Which instructional tasks best supported student engagement and learning? Consider the selected unit objectives, instruction, and assessment along with student characteristics and other contextual factors not under your control. Support these conclusions with data from Part I and student work samples.
- Discuss the unit objective that presented problems for some students. Provide two or more possible reasons for this lack of success. Which instructional tasks could have been redesigned or discarded? Consider the selected unit objectives, instruction, and assessment along with student characteristics and other contextual factors not under your control. Support these conclusions with data from Part I and student work samples.
- Given your analysis of the two unit objectives, provide an honest and thoughtful self-evaluation in which you offer specific ideas for enhancing student learning, either by restating unit objectives, revising instruction, and/or developing new assessments. Give a rationale for why these revisions would improve student learning.

Suggested Page Length**:** 2-4 pages plus charts/graphs. Provide samples of student work in an Appendix.

b. Scoring Guide for Assessment of Student Learning

The three benchmarks are Unacceptable, Acceptable, and Target and use values 1, 3, and 5. However, because often a student is between levels – better than the benchmark, but not quite at the next higher one –scores of 2, 4, and 6 have been added. Differentiating between a 3 and 4 can be difficult and independent scorers may sometimes differ; rarely do scorers differ on the benchmark levels Unacceptable, Acceptable, and Target.

Alignment with Selected Unit Objectives (RIPTS 9)

1-2 Unacceptable: Analysis of student learning: is not aligned with selected unit objectives; and/or provides a superficial profile of student learning relative to the objectives for the whole class, subgroups, and two individuals.

3-4 Acceptable: Analysis of student learning is partially aligned with selected unit objectives; provides a somewhat comprehensive profile of student learning relative to the objectives for the whole class, subgroups, and/or two individuals.

5-6 Target: Analysis of student learning: is fully aligned with selected unit objectives; provides a comprehensive profile of student learning for two of the following groups: the whole class, subgroups, and/or two individuals.

Clarity and Accuracy of Presentation of Graphs (RIPTS 9)

1-2 Unacceptable: Presentation is not clear; does not accurately reflect the data.

3-4 Acceptable: Presentation is clear and logical; reflects the data somewhat accurately.

5-6 Target: Presentation is clear and logical; accurately reflects the data.

Interpretation of Data (RIPTS 9)

1-2 Unacceptable: Interpretation is inaccurate; conclusions are missing or unsupported by data.

3-4 Acceptable: Interpretation is somewhat accurate; some conclusions are supported by data.

5-6 Target: Interpretation is meaningful and technically accurate; appropriate conclusions are supported by the data.

Evidence of Impact on Student Learning (RIPTS 9)

1-2 Unacceptable: Analysis of student learning fails to include evidence of impact on student learning in terms of numbers of students who achieved and made progress toward the selected unit objectives and the amount of improvement they made.
3-4 Acceptable: Analysis of student learning includes some evidence of the impact on student learning in terms of numbers of students who achieved and made progress toward the selected unit objectives and the amount of improvement they made.
5-6 Target: Analysis of student learning includes clear evidence of the impact on student learning in terms of proportion of students who made progress toward the selected unit objectives and the amount of improvement they made.

Insights on Effective Instruction and Assessment (RIPTS 10)

1-2 Unacceptable: Lacks reasonable hypotheses for why some students did not meet the selected objectives. Provides an inaccurate or no description of why some tasks or assessments were more successful than others.
3-4 Acceptable: Explores reasonable hypotheses for why some students did not meet the selected objectives. Provides a basic description of successful and unsuccessful tasks or assessments.
5-6 Target: Explores reasonable hypotheses for why all 3 categories of students did not meet the selected objectives. Provides a detailed explanation of successful and unsuccessful tasks and assessments.

Self Evaluation and Implications for Future Teaching (RIPTS 10)

1-2 Unacceptable: Provides few or no ideas or inappropriate ideas for redesigning unit objectives, instruction, and assessment. Lacks rationale.
3-4 Acceptable: Provides some ideas for redesigning unit objectives, instruction, and assessment. Offers a general rationale for why these changes would improve student learning.
5-6 Target: Provides ideas for redesigning unit objectives, instruction, and assessment. Offers a specific rationale as to why these modifications would improve student learning.

Organization, readability, spelling, and grammar (RIPTS 8)

1-2 Unacceptable: This section is unorganized, difficulty to read, and/or has many spelling and/or grammar errors. Unprofessional presentation.
3-4 Acceptable: This section is organized, readable, and uses appropriate spelling and grammar. Contains few errors. Adequate presentation.
5-6 Target: This section is well-organized, readable, and uses appropriate spelling and grammar. Highly professional presentation.

c. Data for Completers: Analysis of Student Learning (undergraduate, RITE, MAT candidates)

Secondary Education – Mathematics Program Completers for years 2008 – 2010 on Teacher Candidate Work Sample process: Analysis of Student Learning

Years	N	Maximum Score	Mean Score	Explanatory Comment
2007-2008	BA 14 RITE 2 MAT 2	28 28 28	25.1 24 26	Case Study Exit Portfolio
2008-2009	BA 6 MAT 1	24 24	15.7 21	Analysis of Student Learning

2009-2010	BA 8 MAT 1*	42 24	28 19	Analysis of Student Learning

* Completed Student Teaching in Spring 2009; completed degree in Dec. 2009.