EDEL 435: Mathematics Curriculum and Instruction in Elementary School Teaching
Signature Assignment: Case Study Segment (TPE 1-8)

Spend at least one hour with your case-study student assessing mathematical functioning. Remember that this is not a reading test; present information orally as appropriate (About 6 pages. Use tables and other graphic displays if they communicate better than running text).

Before you begin the interview, plan your questions based on a careful review of the California Content Standards in Mathematics at your student’s grade level. Also review the standards for the grade level preceding and following your student’s grade.

Assess your student’s progress in each of the following four areas:

a. **Attitude**: What is the student’s attitude toward math? You may wish to use one of Reys’ questions (page 61) to assess the child’s attitude. Asking, “Do you like math?” won’t get you very far.

b. **Counting**: Does the child count rationally by ones? (see Reys, p. 120) Use concrete materials for assessment. If yes, can the child count by 2s, 3s, 5s, and 10s? Counting by numbers like 4 and counting on and back are more sophisticated strategies if your student succeeds at easier tasks.

c. **Mathematics Facts**: This section has two portions.
   (1) Conceptual understanding: Does the student understand the meaning of mathematical operations as appropriate for the grade level? Present an equation (e.g., $5 \times 11 = ?$) and ask the student to explain what it means. Ask the student to draw a picture or represent the equation in another way. (Important: The student may know the answer to the equation without demonstrating conceptual understanding.)
   (2) Proficiency: Does the student have mastery of basic mathematics facts as expected for the grade level? Use flash cards, a drill sheet, or oral questions to determine the child’s mastery of a sampling of basic addition, multiplication, subtraction, and division facts. Remember, with drill you are assessing rote recall. Do not allow time for the student to work out the exercise. Do not work past the student’s frustration point here.

d. **Conceptual Understanding in a Strand Other than Number**: Select a standard of interest to you in a strand other than number. Devise a strategy to determine whether the student has mastered that standard. If the student has not, which parts or prerequisites has she/he mastered? (This section of the assessment provides you with practice in determining students’ knowledge and skills prior to instruction.)

e. **Problem Solving**: Can and will the student systematically attack and solve non-routine problems? Present the student with three problems of varying levels of difficulty. Reys, Chapter 5, contains many examples, though you can rely on your own questions as well. Allow the student to rely on their own questions as well. Allow the student to choose and solve one problem. After the student’s initial attempts, suggest manipulatives, drawings, or other aids. Ask why the student selected a particular problem. Caution: time should be given freely here…not as in your assessment of rote recall.

The case-study write-up includes four sections:

a. For each assessment area a-e (above), submit:
   - The assessment strategy (Interview protocol: What did you do to collect information?)
   - The results (Submit the student’s work if written. Include student quotes as appropriate.)
   - A plan for instruction based upon assessment results (What instruction is appropriate given the results?)

b. Comment on how this student’s mathematical attitude and performance relates to what you see in his/her overall/general attitude and performance.

c. Conclude with a brief statement of how one (or more) portions of your assessment protocol could be modified for small-group, whole-class use and second-language learners.

d. Reflect on your own performance. What did you do well? How could you improve your presentation of the materials?
# Math Methods Case Study Rubric

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Unacceptable</td>
<td>Does not include required elements and/or meet standards as defined in the assignment. Few to no indicators of candidate's ability to understand and apply elements consistent with the standard. Little evidence of application of the standard demonstrated in candidate’s work. Requires additional revisions to meet the standard.</td>
</tr>
<tr>
<td>2 = Basic</td>
<td>Includes some of the required elements and/or met some of the standards as defined in the assignment. Some indicators of candidate's ability to understand and apply elements consistent with the standard. Limited evidence of consistent application of the standard demonstrated in candidate’s work. Requires additional revisions to meet the standard.</td>
</tr>
<tr>
<td>3 = Skilled</td>
<td>Includes all of the required elements and meets the standards as defined in the assignment. Multiple indicators of candidate's ability to understand and apply elements consistent with the standard. Adequate evidence of consistent application of the standard demonstrated in candidate’s work.</td>
</tr>
<tr>
<td>4 = Distinguished</td>
<td>Exceeds requirements of the assignment. Extensive indicators of candidate's ability to understand and apply elements consistent with the standard. Substantial evidence of consistent application of the standard demonstrated in candidate's work.</td>
</tr>
</tbody>
</table>

**Note:**
Each area must be assessed and receive a score of 3 or higher. Any area marked “Unacceptable” or “Basic” requires the student to make revisions to meet the standards.