Part I – Program SLO Assessment Report for 2012-13

1. **Student Learning Outcome:** The student performance or learning objective as published either in the catalog or elsewhere in your department literature.

Understand the research base for teaching mathematics.

2. **Overall evaluation of progress on outcome:** Indicate whether or not the SLO has been met, and if met, to what level.

   - _____ SLO is met after changes resulting from ongoing assessments, referencing assessment results from the previous year to highlight revisions;
   - _____ SLO is met, but with changes forthcoming (intended when the program is unbanked);
   - _____ SLO met without change required

3. **Strategies and methods:** Description of assessment method and choices, why they were used and how they were implemented.

   Data for this assessment came from assignments submitted by students in the MA K-9 program and either enrolled in MTED 592 in the Fall of 2012 or finishing their Research Reports during the 2012-13 school year. Specific data includes literature reviews written by students in MTED 592: Research Methods, and literature reviews in the final Research Reports submitted and passed in Math 601. Criteria for the literature review assignment in MTED 592 includes *Criteria for analyzing and assessing research* (from The Foundation for Critical Thinking, [http://www.d.umn.edu/~jetterso/documents/CriticalThinking.pdf](http://www.d.umn.edu/~jetterso/documents/CriticalThinking.pdf)) and a description in the syllabus: “The review should be 8-10 pages. … organize, summarize, and synthesize the literature on the topic. Describe any questions that still remain or suggest related research that still needs to be done. Finally, describe how reading the research on this topic informs your teaching or professional life.” Students were expected to submit drafts of their literature reviews in order to receive feedback and improve them.

**Rubric used for this assessment:**
Scores on scale of 1-4: 1 weak, 2 adequate, 3 above average, 4 mastery

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<th>Description</th>
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<tbody>
<tr>
<td>Included primary research from peer reviewed publications relevant to the topic,</td>
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<tr>
<td>Critically analyzed the articles</td>
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<tr>
<td>Synthesized the ideas in the lit review</td>
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4. **Observations gathered from data:** Include findings and analyses based on the strategies and methods identified in item #3.

   a. **Findings:**

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<tr>
<td>Included primary research from peer reviewed publications relevant to the topic</td>
<td>Student1</td>
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<tr>
<td>Critically analyzed the articles</td>
<td>2</td>
</tr>
<tr>
<td>Synthesized the ideas in the lit review</td>
<td>2</td>
</tr>
<tr>
<td>Made important connections between the research and teaching mathematics</td>
<td>3</td>
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   b. **Analysis of findings:**

   The scores were all at least adequate, but too many of them were only adequate. The literature reviews from Students 3 and 4 were their final versions, whereas the other students’ literature reviews were all from MTED 592, so it is likely that these two students revised their final literature reviews with feedback from their advisors. The scores across all students for ‘Critically analyzed the articles’ were the lowest of all criteria, so it is clear that these students need more instruction on how to critically analyze the research they read. In particular, they did not recognize limitations of the research they read and seemed ready to generalize results beyond what was warranted. While the criteria ‘Made important connections between the research and teaching mathematics’ was stronger, if students are not critical in their reading of research, they are likely to apply it incorrectly in their teaching.

5. **What program changes will be made based on the assessment results?**

   a) Describe plans to improve student learning based on assessment findings (e.g., course content, course sequencing, curriculum revision, learning environment or student advising).

   The findings suggest that a curriculum revision is called for. More attention needs to be paid to having students read and be critical of research before having them write their literature reviews. Also, the MTED 592 class was given opportunities to turn in early drafts for feedback, but no one did. This should be a requirement in the future.
b) Provide a broad timeline of how and when identified changes will be addressed in the upcoming year.

The program is currently banked.

6. Description of revisions to the assessment process the results suggest are needed and an evaluation of the assessment plan/process itself (e.g., what changed, what worked, what did not work, and why?).

The evaluation process was effective; no revisions are necessary.

**PART II – CLOSING THE LOOP**

**FOLLOW-UP FROM THE 2011-12 PROGRAM ASSESSMENT REPORT**

**Working definition for closing the loop:** Using assessment results to improve student learning as well as pedagogical practices. This is an essential step in the continuous cycle of assessing student learning. It is the collaborative process through which programs use evidence of student learning to gauge the efficacy of collective educational practices, and to identify and implement strategies for improving student learning.” Adapted 8.21.13 from [http://www.hamline.edu/learning-outcomes/closing-loop.html](http://www.hamline.edu/learning-outcomes/closing-loop.html).

1. **Student Learning Outcome(s) assessed for 2011-12**

Understand the role of and demonstrate effective assessment in mathematics teaching and learning.

2. **Strategies implemented** during 2012-13 to improve student learning, based on findings of the 2011-12 assessment activities.

We have currently banked the program, so no strategies were implemented.

3. **Summary of results** (may include comparative data or narrative; description of changes made to curriculum, pedagogy, mode of delivery, etc.): Describe the effect of the changes towards improving student learning and/or the learning environment.

4. What **further changes to curriculum, pedagogy, mode of delivery**, etc. are projected based on closing-the-loop data, findings and analysis?