

Student-Centered Formative Assessment Change Routine

Correcting Highlighted Errors, Honors Algebra 2 (10th & 11th grades)

Based on the work of Kerrie Avjian (East Providence H.S.) as part of the Student-Centered Assessment Network (SCAN) with funding from the Nellie Mae Education Foundation <https://www.scanetwork.org/>.

Problem of Practice

The teacher noticed that many students did not pay attention to teacher corrections or go back and correct their work when they received graded assignments. Students were passive rather than engaged in improvement.

For two PDSA cycles in the spring of 2019, teacher Kerrie Avjian highlighted students' first errors on their papers and handed these back to students to correct. She also incorporated student reflection into the highlighting routine. She found that students were more engaged with corrections and most had improved achievement on topics where they had made corrections in response to highlighting.



Measures

Describe measures and include the measurement tools/instruments (e.g. excel template, Google survey, etc.). Embed documents so they are accessible digitally or can be printed out. Use insert tab, select object, then file, and display as icon.

- Tracked student participation on exit tickets and score improvements from corrections (spreadsheet)
- Tracked student common errors and student-identified errors (spreadsheet)
- Selected questions from unit test - how did students do on the topics that were on the highlighted exit tickets?
- Selected questions from the Final Exam - how did students do on the topics that were on the highlighted exit tickets?
- Teacher observation: Notes, the teacher tracked student errors and used this as data to guide class discussions

Procedure

Include key details such as frequency, name tools or templates being used, and describe any specific process thoroughly. For example, if “peer editing” what exactly are students doing?

1. Students are given an exit ticket with two Algebra 2 problems on Thursday or Friday (depending on the week). The exit ticket has space for corrections as well as the standard work space.
 - a. Students complete the exit ticket individually
2. The teacher highlights the first mistake (if any) for each problem on each exit ticket and these are returned on Monday or Tuesday of the following week
 - a. The teacher records the initial grade using a rubric score of 1-4.
 - b. No grade or score is given to students until the errors are revised.
3. Students look at their errors and make corrections. This is done individually or in small groups.



4. In addition to correcting their work, students add a reflection their work
 - a. In PDSA 1, the reflection was a comment on what to pay attention to, “I need to remember ...”
 - b. In PDSA 2, there was a reflection for each question.
5. Students receive a grade for revised exit ticket based on the rubric

Key Resources

In this section include a summary of key resources (e.g. exit tickets, tasks, rubrics, etc.) that are essential for replication. They should match the names of the resources/tools referenced in the procedure section. Embed documents so they are accessible digitally or can be printed out. Use insert tab, select object, then file, and display as icon.

**Sample
Exit Ticket**



**EPHS Math
General
Rubric**

**Sample
Spreadsheet
Record**

Variations

In the basic math “highlighting errors” change routine, the teacher highlights the first error and then students individually or in groups make corrections. The theory of action is that students will learn more by responding to this non-specific feedback and making their own corrections rather than passively receiving feedback written as corrections by a teacher.

Variations on this idea have included:

- student reflection on how to avoid making similar errors in the future,
- student reflection on personal strengths and things to work on as mathematicians, and
- peer highlighting and discussion.

Mathematics solution highlighting has been used in Algebra, Geometry, Pre-calculus, Calculus, AP Statistics and College Preparatory Mathematics classes by SCAN teachers, Leslie Bagian, Ozlem Lamontagne, Jon Chapman, Scott Breault, Jennifer Johnson-Octeau, and Karen Livingston.