PEIL Project Final Report
ChaRM: Changing Remedial Math
2014-2015

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EXECUTUVE SUMMARY:

Restructuring of the year-long developmental math sequence, ChaRM 805, 806 and 807

Shift in culture to the requirement of "mastery" of math content versus learning enough to earn a passing grade.

Each course has three exams and all three exams must be passed at the 85% level.
Students earn the right to take a makeup exam by completing a Worksheet with 100% accuracy.
Students given three attempts to pass each of the exams.

Change in pedagogical approach toward discovery and exploration, and away from straight lectures.

Creation of classroom workbooks in which students actively construct math concepts leading to a deeper understanding of the material.
Use of manipulatives to increase student understanding of math concepts.
Use of online ALEKS program which uses adaptive questioning, tailoring questions for each student. Again requiring of the material versus a

*Provide greater support to instructors through an improved teacher training course, Math 6005**

Written homework and checkpoints are the same across all sections.
Test bank to ensure consistency across sections.

structure.

Results

As expected, because of the 85% mastery requirement, Math 800 had a higher pass rate than ChaRM 805. However, those who repeated ChaRM 805 were more likely to pass the second time through than their 800 counterparts.

The pass rate for ChaRM 806 was much higher than Math 900. If a student made it into ChaRM 806, then they were ready to be there. Their knowledge of the mathematical fundamentals was stronger than those entering Math 900.

In all three ChaRM classes, the percentage of A/Bs are significantly higher than the comparable 800/900/950 courses. We required mastery in order to pass the course and thus the passing students really needed to know all of the material, resulting in high grades.

Bottom Line: The full year run of ChaRM in 2014-2015 showed much promise and good results. We believe it is robust enough to be a permanent part of the developmental math program.

Below, are tables which compare statistics for first time students in ChaRM 805 versus 800, in ChaRM 806 versus 900, and in ChaRM 807 versus 950. We are interested in the grades and the pass rates. Generically, all three tables show the number of students from each section and the grade they received. We then aggregate the totals and compute the pass rates off of these aggregate numbers.

TABLE 1

Comparison of Pure 800 with Pure 805 (first time students only)

B. Comparison of Pass Rates for ñRepeatò Students

We are also interested in looking

TABLE 5

Description Number	Pass Math 900 2nd time (Spring 2015) [1]	Pass ChaRM 806 2nd time (Spring 2015)

CONCLUSION:

We had three major hypotheses for the ChaRM sequence.

Hypothesis 1. Due to our high standards, we anticipated that the pass rate for ChaRM 805 would be lower than that of Math 800. In the past, we saw that students were scraping by with a score of 70% in Math 800, moving on to Math 900, without really having the necessary skills to succeed in Math 900. We wanted to break this cycle by only allowing students to move on when they are truly ready.

Hypothesis 2. Those who make it to ChaRM 806, belong there and are more likely to succeed in ChaRM 806 and ChaRM 807, as compared to those who are in the Math 900/950 sequence.

Hypothesis 3.

than the comparable Math 800/900/950 group of students.

Observations relevant to hypothesis 1:

Data Math 800 did have a higher pass rate than ChaRM 805 (Table 1), but those who repeated ChaRM 805 were more likely to pass the second time through than their 800 counterparts (Table 4).

Interpretation We expected so much more of the ChaRM 805 students than is usually expected of Math 800 students. The students had to master all material at a level of 85% in order to pass the course. Thus it was harder to pass the class.

Observations relevant to hypothesis 2:

Data As expected, the pass rate for ChaRM 806 was much higher than Math 900 (Table 2). However, the pass rate for ChaRM 807 was less than Math 950 (Table 3).

Data A large percentage of students (91%) passed ChaRM 806 in one or two quarters (Table 5).

Interpretation If a student made it into ChaRM 806, then they were ready to be there. Their knowledge of the mathematical fundamentals was stronger than those entering Math 900.

Interpretation However, the comparative pass rate dropped in 807 versus 950. We believe that this is due to the fact that ChaRM 807 had a full six units, which was just too much material. Because ChaRM 806 has four units, we are moving some material from 807 to 806. We anticipate that this will help improve the 807 pass rate.

Observations relevant to hypothesis 3:

Data In all three ChaRM classes, the percentage of A/Bs are significantly higher than the comparable 800/900/950 courses (Figure 1).

Interpretation We required mastery in order to pass the course and thus the passing students really needed to know all of the material, resulting in high grades.

NEXT STEPS:

1. We feel that the ChaRM program is well worth continuing, however we have learned some valuable roll out and seek ways to improve the program. One of the key elements is the balance between mastery and student success. How high do we need to set the bar so that students will succeed in later courses? This past year, we set that at 85%. This coming year, we are setting this threshold to 80%. We believe that this will still maintain the which we have sought to create.