



Divisional Strategic Planning Brief - Mathematics
5/31/2017

Campus Outcome

Address, review, and improve low-performing programs and courses. Goal 2: Learning Assured Objective 4.

Department Outcome

Provide communication and support mechanisms that will contribute to student success. Unit Objective 4

BACKGROUND

Professor Alison Hammack created the WIN (Welcoming Inclusive Nurturing) Exam Plan as one of her faculty learning outcomes during her tenure process. In 2016, she received the Raymer F. Maguire Jr. Chair in Mathematics award of \$4,000 to conduct further research on her WIN Exam Plan. The WIN Exam Plan is designed to provide remediation for students in order to increase their understanding of mathematics content, increase individual students' exam passing rate, increase the overall course passing rate, and to improve study strategies in preparation for formative assessments.

It is important that professors promptly identify students who are struggling in their mathematics courses, since mathematical concepts often build upon previously learned ideas. If an early concept is not mastered, the subsequent material may be difficult for students to grasp. Students who score low on an exam might benefit from additional time and attention on their learning in order to help them master the material. Implementing an exam remediation plan (WIN Exam Plan) can empower students to develop a better understanding of the content which would, in turn, help them to pass the course, persist to graduation, and even progress toward their career goals. (Article from the Grove, July 2016)

INTERVENTION

Professor Hammack worked with three professors (Keri Siler, Lisa Potchen, and Judy Chubb) this year to implement the WIN Exam Plan in three large section College Algebra classes and two traditional College Algebra classes. The total number of students having access to this intervention was approximately 275. Students were given the WIN Exam Plan option after the first two tests in the large section classes and after four tests in the traditional sections. All students in all classes were given the opportunity to retest after they had fulfilled the WIN Plan requirements.

WIN Exam Plan requirements for Students

1. The students were required to correct exam mistakes by rewriting any problems with incorrect answers and then correctly solving these problems with all steps and work shown.
2. The students were required to complete additional problems with a minimum score of 90%.
3. The students were required to spend two hours in the Math Support Center or one hour with their professor. During this time students were expected to relearn material, correct their incorrect exam problems, and work on the additional problem set.

If all three requirements were completed, then students were allowed to retake a similar exam in the testing center. The higher of the two exam scores was then used for the test grade.

STRATEGIC RESULTS

In the 3 large section College Algebra classes 169 students completed the course. Nine of these students (5.3%) passed the course as a result of participating in the WIN Exam Plan. While this number is not necessarily significant, 26 of these students (15.4%) improved their overall final grade by 1 letter grade, and 2 of these students (1.2%) improved their overall grade by 2 letter grades.

In the 2 traditional College Algebra classes 50 students completed the course. Four students (8%) passed the course as a result of participating in the WIN Exam Plan while 15 of 50 students (30%) improved their overall final grade by 1 letter grade.

At the end of the semester students participating in the WIN Exam Plan were surveyed about their experience. The survey collected feedback on the extra work involved, extra time spent, and the benefits of the WIN Exam Plan. Students were asked, "What did you like or dislike about the WIN Exam Plan reattempt process?"

The majority of the survey responses regarding the WIN Exam Plan experience were very positive. Students mentioned that they appreciated having more time to learn the material and getting a second chance at mastering the material. The students thought that the opportunity to correct their mistakes from their first attempt was very beneficial. Students also mentioned that they enjoyed the opportunity to work one-on-one with the professor.

Negative survey responses regarding the WIN Exam Plan centered on the requirements for the reattempts, timing of the reattempts, and perceived differences between a paper attempt versus an online reattempt. Several students revealed that going back and relearning old material while also learning new concepts was sometimes difficult. Students also mentioned that the reattempt was often due near the time of the next exam, making it hard for some students to focus on the upcoming exam while working on a previous exam.

Students also noted that taking the reattempt online felt different from taking the first attempts on paper. Some students perceived the online tests as harder and felt that the online program graded more severely by marking the answers only right or wrong without allowing for some credit for partially correct work like on the paper tests.

Participation

| Three large classes | | | |
|--------------------------------|---|--|--------------------|
| Exam | Number of students that scored 75% or below | Number of 2 nd attempts taken | Participation rate |
| 1 | 87 | 38 | 44% |
| 2 | 111 | 75 | 68% |
| Two traditional classes | | | |
| Exam | Number of students that scored 75% or below | Number of 2 nd attempts taken | Participation rate |
| 1 | 7 | 1* | 14% |
| 2 | 49 | 14 | 29% |
| 3 | 20 | 49 | 41% |
| 4 | 24 | 49 | 49% |

*student withdrew

FUTURE RESEARCH

Future research about the WIN Exam Plan should expand on its impact in other subject areas and classroom methodologies, and focus on improving participation rates.