

Weber State University
Developmental Mathematics Program Review
February 2, 2018

Overview/introductory Statement

Weber State Developmental Mathematics Program (DMP) is faced with many of the same challenges as developmental mathematics programs across the United States. The DMP must try to help students become college-ready in mathematics in the shortest amount of time while working with a diverse population. This population often consists of non-traditional students who have family and work responsibilities. The developmental education students often exhibit less confidence in their beliefs in their abilities and have higher levels of mathematics anxiety than the general population. The DMP director and instructors understand the student population that they teach, and administration supports the program. The Weber State DMP has taken great strides in creating initiatives to lessen the time required to complete developmental mathematics courses. Within the curriculum, instructors address students' mindset about learning. As you read the program review, you will sometimes notice that a strength of new initiatives is also a challenge for the program. The DMP instructors and directors should be applauded and recognized for always putting the goal of helping their students learn first and for their efforts to provide students with diverse pedagogical approaches to learn the content and multiple pathways to get to the quantitative literacy courses. The opinion of this program review team is that the Weber State University DMP passed the program review for each of the standards. In addition, the DMP responded to the previous review team's report. Recommendations for further improvement are provided.

STANDARD A - MISSION STATEMENT

Strengths

- The mission statement accurately identifies the goals of the DMP and is listed on their website.
- The program website is clear and explicit about the DMP. Students who utilize this website to find information about the program will have the majority of their questions answered.

Challenges

- In the mission statement, building confidence and promoting learning skills are integral parts of the Program's mission; however, it is difficult to collect data on affective measures.

Recommendations

- Continue to keep website updated with current course offerings.

STANDARD B - CURRICULUM

Strengths

- The tuition and fees that students pay when enrolling in a developmental mathematics course include cost of books, which alleviates some of the stress that students encounter at the beginning of a new course.
- Binder checks are conducted in the flipped model classes to ensure students are keeping track of work and progressing as they should.
- Homework is scaffolded.
- Curriculum was designed according to national standards
- Curriculum was designed by the faculty and backwards design was utilized from the current quantitative literacy (QL) courses.
- There is consistency across the curriculum (i.e. common assessments, homework, grading rubrics, and course materials).
- Faculty and administrators understand that one course pathway and one pedagogical approach will not work for all students. Therefore, multiple pathways and multiple pedagogical approaches are provided to students.
- Success initiatives are incorporated in all classes, which include videos and activities on mindset, motivation, time management, and perseverance.
- The R.E.A.L. courses are designed to help students build conceptual knowledge along with procedural knowledge.

Challenges

- Frequent revisions of curriculum can be time-consuming and challenging for faculty.

Recommendations

- Make evidence-based decisions by utilizing data prior to making revisions to courses.
- All changes to curriculum need to be communicated to full-time and adjunct faculty. In addition, adequate time for implementing curriculum changes needs to be provided. (*Review team suggestion: Faculty should be given no less than a weeks' notice of any adoption of curriculum changes and/or updates.*)

STANDARD C - STUDENT LEARNING OUTCOMES AND ASSESSMENT

Strengths

- Changes in the course-delivery model have resulted in higher pass rates.
- Success rates of students going into QL courses are relatively high (i.e. above 70%, disregarding the recent implementation of 970 as a prerequisite for 1040, $n = 6$ students).
- The DMP has complied with the previous review team's recommendation of transparency in publishing student completion outcomes by including W and UW in pass rate data.
- The DMP has developed learning outcomes for each developmental math course with an acknowledgement that not all of the learning outcomes are measurable.

Challenges

- Grades for classes below 1010 do not factor into a student's GPA, so there is limited motivation to excel in these courses.

Recommendations

- Too much emphasis is placed on the mid-term and final exams. Students in the Developmental Math program often have test anxiety and therefore the emphasis on the mid-term and final exams work against them. (*Review team suggests exploring other options to assess the mastery of mathematical concepts or students.*)

STANDARD D - ACADEMIC ADVISING

Strengths

- From the support system all the way up to the Provost, there is a focus that Developmental Math is about student success.
- Institution utilizes data beyond national placement tests to appropriately place students and students are provided with the opportunity to have their math placement re-evaluated through other means.

Challenges

- A subpopulation of students who require remediation are not enrolling in math during their first year as a student at WSU.

Recommendations

- The Institution should educate academic advisors on the importance of students taking math early in their college career. An anecdotal experience was shared that would indicate not all academic advisors are consistent in their advising practice. The DMP flier and the messages on the flier should be promoted. The messages state that "Students who take math their first semester are much more likely to graduate" and "students who take math their first semester are more successful in other college classes."
- At the institutional level, better communication should be encouraged between all university departments, programs, and support services regarding enrollment practices and services provided to students.

STANDARD E - FACULTY

Strengths

- Faculty are fully committed to, invested in, and passionate about student success.
- The institution is respectful of teacher workload and does not overburden instructors with course overloads.
- Faculty has a voice in what format of class they teach.
- The DMP provides professional development opportunities for all faculty.

Challenges

- Communication among full-time and adjunct teachers.
 - Teachers do not implement current math pedagogy (Some examples are:
 - Saying “cancel” instead of describing the operation that took place (this leads to confusions on when it is the right time to “cancel”, e.g. $\frac{2}{6} = \frac{x}{2}$);
 - Saying “Reduce the fraction” instead of “Simplify the fraction” (the word “reduce” leads students to think they have made the value of the fraction smaller);
 - Telling the students that you cannot simplify $\frac{x^2+4}{x^2-3}$ by dividing the x^2 terms without explaining why (division does not undo an addition).
- Ratio of adjunct to full-time is high.
- Adjunct faculty need support in being part of the Developmental Math community.

Recommendations

- Institution should consider a tiered contract for Developmental Math Instructors. (*The review team suggests single-year contracts for four years, then advance to a two-year contract*).
- DMP should implement a mentor program for adjunct faculty.
- DMP should work on building a sense of community within their program. (*The review team suggests peer observations, socials, and encouraging collaboration amongst all instructors*).
- DMP should do a cost-comparison to determine whether having instructors spend required work hours in the HUB is an efficient use of program funds. (*The review team suggests DMP instructors should not be required to regularly work in the HUB, unless they want to hold their office hours at the HUB. We feel this is a poor use of the program’s resources, however, we recognize the possible need of these instructors in the HUB during high demand periods.*)

STANDARD F - PROGRAM SUPPORT

Strengths

- Tutoring centers are in various locations.
- Physical classroom environments are conducive for collaborative learning.
- Administration is supportive of DMP director in the goal of meeting the program’s learning objectives and the director’s educational vision.

Challenges

- Tutors are not trained to tutor math at the developmental math level.
- Communication between DMP and program supports is a challenge.

Recommendations

- Tutoring services should recruit tutors from previous developmental math courses.
- Tutoring services should train tutors to teach mathematics at the developmental math level.
- Tutoring services should have tutors observe mathematics classes

- DMP should provide hard copy math resources in each tutor center, including syllabi for each course.
- DMP should provide tutors access to online courses (e.g. MyMathLab training courses). Communication between DMP and program supports should improve at all levels.

STANDARD G - RELATIONSHIPS WITH EXTERNAL COMMUNITIES

Strengths

- DMP is partnering with local school districts for Concurrent Enrollment Math 1010 courses

Challenges

- No voice in Faculty Senate even though the Developmental Math, which is a program not contained in any academic department, impacts all university departments.
- Apparent lack of camaraderie between the Math Department and the DMP.

Recommendations

- Continue to foster relationships with local school districts.
- Build a working relationship with the Math Department that will support the goals of both the DMP and the Math Department.
- DMP should have a representative at Faculty Senate since they are their own group of instructors, not housed in any specific department.

STANDARD H - PROGRAM SUMMARY

The DMP at Weber State University understands their role within the university, which is to prepare students to be successful in college-level courses. In response to achieving this goal, the DMP director and instructors made it apparent to the review team that they are open to feedback regarding their strengths and weaknesses of the program and recommendations for improvement. Administration also expressed their support for recommendations to improve success rates.

A self-study report was provided to the review team. The DMP provided suitable explanation of the compliance of the last program review in the form of the Self-Study Report, current DMP outcome data, and current math curriculum and pathway courses. Recommendations from the last program review that were out of the control of the DMP were explained as such and not addressed (i.e., institutional level). Recommendations made in the last program review that were within the control of the DMP were taken under advisement and significant changes were made. For example, multiple pathways such as R.E.A.L., flipped, and online courses are offered replacing the problematic Emporium model. DMP instructors have also been trained in effective mathematics teaching practices recommended by NCTM.

The DMP is still faced with many challenges in and out of their control. In this report, the DMP review team has offered several recommendations to improve upon many of the challenges the DMP faces. Below are additional recommendations by the review team that did not correspond to a specific standard.

ADDITIONAL RECOMMENDATIONS AND COMMENTS FROM THE REVIEW TEAM

- Create student interventions that would require students to utilize tutoring. (*The review team suggests if students' grades fall below a certain percent – perhaps a 70% - they are required to go to tutoring.*)
- Provide instructors an incentive for training tutors.
- Provide students with instructions and/or videos on the website to help with technology issues such as optimal browsers and settings for accessing Pearson programs.
- Continue marketing efforts within community and with campus programs such as tutoring.

REVIEWERS

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