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Draft QEP

Note: I have developed this draft not as a final document, but as a starting discussion point for our next meeting. I took the minutes from our last meeting along with a little more research and compiled the document. Do not be concerned with the wording as Beth will be writing the document, and she will make it good! But I needed to put something on paper to make sure that when we say course redesign, we are all thinking about the same thing!

Improved Student Performance in High Risk Math Courses

Draft Abstract

The redesign of high risk courses identified as Mth 098, Mth 100, and Mth 112 is the cornerstone of JDCC’s QEP. The planned redesign has three major components: 1) instructional format, 2) learner support, and 3) a variety of course delivery methods. The redesign of the instructional format will focus on curriculum alignment and the inclusion of student-centered activities using technology-based learning principles. Redesign will result in greater standardization of classes providing a consistent learning environment. Learner support will be emphasized through the development of a math success center which will include a math coach, certified tutors, supplemental instruction, and focus groups. To address the needs of a diverse student body, multiple course delivery options will be available including the traditional format as well as hybrid and online options (???).

QEP Objectives

- To improve student performance in high risk math courses.
- To increase the success of students as they progress through higher-level math courses in their degree plan.
- To assist faculty in learning, integrating, and assessing innovative teaching strategies in high risk math courses.

Overview

The redesign of high risk math courses is the cornerstone of the JDCC QEP. The courses will be redesigned to facilitate innovative and pertinent class content which will lead directly to improved student learning outcomes in math classes for students at JDCC.

Course Redesign will include the redesign of the instructional format, emphasize learner support for students in math classes, and provide multiple course delivery options. Instruction format redesign will include 1) curriculum alignment to allow for common objectives, activities, and assessments and 2) intentionally designed student-centered activities using technology-based learning principles based on research. Learner support will be enhanced by the development of a math success center. A math coach will be the key player in increasing opportunities for student engagement. The math success center will house certified tutors. Supplemental instruction with be another major component of student support. Multiple delivery
options including the traditional format, hybrid, and online classes will help to meet the diverse needs of our students.

Curriculum Alignment

Curriculum alignment assures efficient sequencing of learning objectives to assist students as they master the appropriate learning objectives for each course. This would include writing specific and measurable student learning outcomes which encourage higher levels of thinking. Course redesign will result in the use of common course syllabi, activities, and assessments to provide consistency in the learning environment.

Student-Centered Activities

A variety of student-centered, technology-based, intentionally designed active learning approaches will be incorporated into the curriculum utilizing My Math Lab, Blackboard, or other resources which will facilitate the student's mastery of course objectives. Online resources will be used to decrease the faculty response time and provide students with immediate feedback. Interactive tutorials will engage students and enhance the quality of the class.

Learner Support

JDCC will support the math learner by providing a Math Success Center. The Center will be housed in a centralized and highly visible location. The math center will serve as an extension of the math classroom. A math coach will be hired, and this individual will play a key role in providing students with increased opportunities to engage resulting in improved math skills. The Center will be staffed with an SI program and certified tutors while provided shared space for focus groups. The center will house computers for course-relevant software, tutorials, and other online resources.

Multiple Course Delivery Options

In order to respect the multiple ways our students learn and the diverse lifestyles of our students, a variety of course delivery methods will be offered including hybrid (1 lecture/2 labs), online, and the traditional classroom setting enhanced with technology.

Math faculty will receive additional training in methods of implementing best practices and principles into the math curriculum. Different approaches to using technology to enhance learning in different kinds of settings will be explored. Professional development workshop will be conducted with sessions on writing higher-level learning objectives, meaningful assessment, Blackboard Course Management, My Math Lab, and other innovative uses of technology such as podcasting or Facebook.

Assessment

Q1 How will we demonstrate that course redesign had a positive impact on student learning in math courses at JDCC?
Quantitative assessment: Compare students’ scores on the final exams in Mth 098, Mth 100, Mth 112 with baseline data.

Pretest/posttest each section of students.

Track the progression of students from Mth 098 to Mth 100 to Mth 112 and compare to baseline data.

Compare the success of students on the embedded questions on the final exam with the baseline data.

Q2 How will we know that the Math Success Center had a positive impact on student learning in math courses at JDCC?

Quantitative assessment: 1) Compare the success rate of students with the amount of time spent in the Math Success Center. 2) Compare the performance of students with baseline data as measured on the final exam or other assessments.

Qualitative assessment: Interview faculty to determine if they feel students have a better grasp of the material as a result of participating in the activities provided by the Math Success Center. Interview students to find out if they feel the Math Success Center has helped them master the course objectives.

Q3: How will students’ positive impression of learning math increase and negative emotions decrease after course redesign and usage of the Math Success Center?

Quantitative assessment – affect and motivation scale given to students the semester before the interventions and the same scale given to students after the intervention. (There was much discussion about this assessment).

Qualitative assessment – focus groups and individual student surveys.

Tasks: (This is not all inclusive—this is a start)

| Year 1: Provide faculty professional development workshops on writing high-level student learning outcomes, meaningful assessment, and integrating innovative strategies into the curriculum. |
| Year 1: Evaluate Mth 098, Mth 100, Mth 112 and write student learning outcomes which are expressly stated, measurable, and at the higher levels of Bloom’s taxonomy. Ex. Look at Faulkner’s syllabi. |
| Year 1: Develop frequent means of assessing each student learning outcome in Mth 098, Mth 100, & Mth 112 providing students with a purposeful way (critical thinking real-life connectivity) to demonstrate mastery of each objective. |
| Year 1: Developed a Math Instructor Resource Notebook containing the standard textbook, syllabus, semester outline, pacing, group activities, homework and assessments for each course. |
| Year 1: Host orientation for math faculty to contribute to the consistency of the learning environment. |
| Year 1: Collect baseline data |
| Year 1: Design the Math Success Center, hire math coach, purchase computers and |
Year 1: Design & incorporate innovative learning activities in Mth 098, Mth 100, & Mth 112 utilizing My Math Lab, Blackboard, or other resources to provide multiple ways for students to master the learning objectives.

Year 1: Develop common activities and exams.

Year 2: Offer additional course delivery options (traditional, hybrid, online?)

Year 2: Design and incorporate math orientation designed to improve students’ attitudes about learning math.

Year 3: Develop & Incorporate SI

Year 3: Develop means for tutors to become certified.

Incorporate alternative strategies to encourage students to take advantage of the Math success center.

Year 4: Possibly add online math courses.

Year 5: Possibly explore new technology and strategy

**Student Learning Outcomes**

Specific learning outcomes are expected based on the stated objectives of the QEP.

1. The number of students demonstrating mastery of course-level objectives will increase by ______% of baseline numbers.
   
   Students will be administered a standardized final exam in Spring 2008, Summer 2008, and Fall 2009. This will be our baseline data.

2. _____% of students will master course objectives at 80%. (pretest/posttest)

3. The number of students demonstrating an increase in the success rate in the next higher-level math class will increase by _____% of baseline numbers. (We need to define success rate in the next level)

   We need to collect this baseline data Spring 2008, Summer 2008, and Fall 2009.

4. Embedded questions from previous exams into next exam to test carryover of knowledge throughout the semester.

5. Maybe add measure: decrease # of IP’s in MTH098 by ____% while maintaining # passing Math 100.

6. The number of students demonstrating mastery of the questions embedded on the final exam will increase by _____% of baseline numbers.

7. The number of students who report positive attitudes towards math will increase by _____% of baseline numbers on the affect and motivation scale.

8. The number of students who express positive attitudes towards math will increase by ________% as documented in focus groups and compared with baseline data.

9. There will be a positive relationship between the number of students who master the course objectives and participate weekly in the activities provided by the Math Success Center.????